

An Introduction
TO THE
ART
OF
Logick:

Composed for the use of English
Schools, and all such who having no op-
portunity of being instructed in the Latine
Tongue, do however desire to be in-
structed in this liberal Science.

By *John Newton*. D. D.

L O N D O N,

Printed by E. T. and R. H. for *Thomas Pas-
senger* at the Three Bibles on *London Bridge*,
and *Ben. Hawlock* over against *St. Magnus*
Church. 1671.





TO THE
Worshipful
HENRY MILBERNE Esq;
Recorder of Monmouth.

SIR.



*T*is now twenty years and
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The Epistle

of; yet must I acknowledge that my conference with you, hath not only rivetted me in my former perswasion, but much animated and encouraged me to reassume my former attempt. And though I find my proposals to be much slighted and contemned in general; yet till some persons of worth and learning, shall by force of argument convince my judgement, I shall not easily be perswaded to desist; but shall hope that there may be yet found some to joyn with you in giving encouragement to such an Honourable undertaking, as is the teaching of youth all the sciences in their own Tongue: An introduction to the last and highest of them, the Art of Logick, I here tender the world under the Patronage of your name, to let it know as well your zeal for your Country, as my gratitude for the many favours I have received from you: and if at last I can persuade

Dedicatory.

swade some few to give their children
such education in their own tongue,
(before they attempt any thing in o-
ther languages) as may in some good
measure fit them for all imployments
both by Sea and Land, God shall have
the Glory, they and their Country the
profit; and I in that shall think my
self abundantly satisfied for all the
pains that I have yet, or shall hereaf-
ter undertake; and the rather, because
I hope thereby to make it appear, how
much I am.

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Sir

Your faithful Servant

to command

John Newton.



TO THE
TEACHERS
OF
ENGLISH.



YOU are they to whom
this Nation is behold-
ing for the first foun-
dation of all litera-
ture ; by you are all
our youth first culti-
vated and instructed not only in
Letters and Morality, but in the
Principles of Religion also ; and I
could heartily wish, that your en-
couragements were more suitable to
your

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your indefatigable pains, great worth, and honourable calling: But alas! I cannot but be deeply sensible not only of the mean reward usually given to you, but also of the great scorn to which you are too often lyable: but let not this discourage you, in these your pious, as well as honourable undertakings, but let it rather heighten your spirits and encrease your courage, not only patiently to undergoe all those unjust contempts, that are by foolish men thus rudely cast upon your persons; but also to scorn the scorers; and to this purpose let me intreat you, for the glory of God, the edification of his Church, and the good of your Countrey, to look a little further than the bare teaching of children to read: be not so forward and willing to quit you of those tender plants, by sending them to Latine Schoois (for their further instruction and greater advan-

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rage as you perhaps may think ;) for your parting with them so very early, doth not only hinder their chearful progress in the Latine and Greek tongues, but for ever debar them from all opportunities of getting that knowledge in Writing, Arithmetick and Geometry, which would capacitate them for those callings, to which the meanness of their parents fortunes doth and will enforce thousand thousands of them. Let your industry therefore prevent their being sent either to them that shall do them no good at all, (I mean the Latine master,) or yet to those, that are only skilled in the dexterous use of a Goose quill : for as for Arithmetick, to the shame of that whole society, there are very few that are able to teach a child so much as is required to compute the quantity of a glass window ; so that you need not despair of gaining so much your selves, as will

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will enable you to do that work as well as they ; and as for writing, the world doth swarm with so many excellent copy-books, that it is no hard matter for you to make it appear, what a useless creature a bare pen-man is, I mean such an one as is neither able nor willing to teach children to read, nor that which they chiefly profess the art of Arithmetick. Nor will the Theory or Practick of vocal musick be any impossible thing for you to undertake ; but this accommodation would certainly ensue, that all congregations would perform the part of their devotions to God with far greater harmony than now they do ; all Cathedrals would be better furnished with Queristers and singing-men, and all churches with far more fitting parish-Clarks : yea, and such helps there are for Astronomy also, that you may with wonderful ease have a competent knowledge.

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knowledge in that noble science. Would you therefore but take upon you (as easily you might,) the teaching of these things, your Schollars would not only proceed with great delight, but the visible profit that would thereby accrue to them, and the whole nation, would certainly remove very much of that scorn and contempt under which you now groan. And now to compleat this work, and to confine the Latine master to those children only, that are intended for some learned profession, acquaint those that are under your tuition with the Elements of Rhetorick, and not of Rhetorick only, but also of Logick. These two Sciences have such a natural dependance on one another, that they are not fit to go asunder, and therefore as my Rhetorick is ready for you, so here I now present my Logick to you as the seventh and last part of an English Academy; the which I have

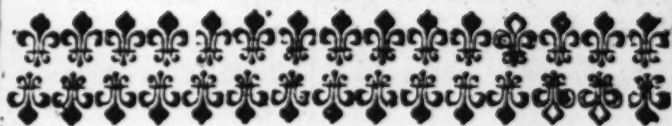
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have composed from those well known and yet received compendiums of this art, which have been heretofore published by the late learned Prelate Bishop *Saunderson*, Mr. *Airy*, Mr. *Smith*, *Burgersdicius*, and others; and do believe that the teaching of all these Sciences in the English tongue, would make an increase of knowledge in our land to an admiration, and exceedingly further all those that are intended for learned professions, in the attaining of the Latin and Greek tongues, or of any other language: but do with all know how hard a matter it is to perswade the world, from their wonted and received practice: and therefore I shall only wish well to the things that I have propounded, and leave them to be more or less made use of by you, as you shall be perswaded in your own minds.

J. Newton.

THE

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The First Book

OF THE

ART of LOGICK.

CHAP. I.



Logick is an Art which conducteth the mind in the knowledge of things.

In this Definition two things are to be explained.

1. *The name of the thing defined.*

2. *The Parts of the definition.*

For the first of these, Logick hath its name from this word Λύγω, which signifieth
B *speech*

speech, and according to *Aristotle*, speech is twofold, *internal*, and *external*. *Internal speech* he calleth that which is conceived in the mind: And that he calleth *external*, which is expressed by words; now *Logick* hath its name from both these kinds of speech, but chiefly from the *internal*, which is the reason or *rationation* of the mind, whereas the *external speech* is but the interpreter of the *internal*.

This word *Logick* may be taken two waies

1. For the *Habit* which is gotten by precept and practice.

2. For the *Systeme* of *Logical* precepts, by which that *habit* may be more easily acquired.

And this *definition* of *Logick* doth beset with it in the first acceptation; though I shall here speak of it in the second; namely as it is taken for the *Systeme* of *Logical* precepts.

The parts of this *definition* are two, the *Genus* and the *differentia*; the *Genus* or general name here given to *Logick* is *Art*, not a manual art, or handy-craft trade, but an *internal* and *mental* art; for the mind hath its artificial workings as well as the body, as is manifest even in *Poetry*.

The *difference* or particular name, by which

which it is distinguished from other arts will be best conceived by considering three things; the *End*, the *Offices* and the *Object* thereof.

The last and principal end of Logick is, the knowledge of things, and its chief Offices by which this *End* may be attained, are these three.

1. To define things that are obscure.
2. To divide things that are general and universal.
3. To reason concerning things dubious.

And the matter or Object about which it treateth, is, all that we can possibly either conceive in our minds, or utter with words; but the manner how this matter is to be considered, is not as things are in their own nature, but as the Instruments of Logick may be applied unto them.

The parts of Logick therefore are these two; *Thematical* and *Organical*.

The *Thematical* part is that, which treateth of *Theams* with their various affections, and second notions, as of the matter of which Logical Instruments are composed.

The *Organical* part, is that, which treateth of those Instruments, and their composition.

CH A P. II.

Of Simple and Compound Theams.

A Theam is any thing propounded to the understanding that it may be known.

1. To know is to form a conception or notion of the thing proposed: And a Notion is the representation of a thing in the understanding.

2. Notions are of two sorts Primary or Secondary.

3. A Primary Notion is that which represents the thing as it is in it self.

4. A Secondary Notion is that which together with the first Notions represents the manner how the mind doth either understand a thing, or explain its own understanding unto others.

5. Theams are either Simple or Compound.

6. Simple Theams are such Theams as are apprehended without any composition of Notions; as a man, a house.

7. Compound Theams are such, as are understood by two or more Notions, being joined together in the affirmation, or in the negation of a thing, as a man doth run.

8. A Simple Theam is either universal, or particular.

9. An

9. An universal Simple Theam is that which in its own nature may be spoken of many in one and the same respect, and that univocally and without any ambiguity, as, a man, a horse, a plant.

10. A Particular or Singular Theam is that which in its own nature can be spoken of no more than one, as, Socrates Plato; for though the names of Socrates and Plato may be given to many, yet that is by way of imposition, not of their own nature; names as names are naturally spoken of no more than one.

11. Singular Theams are call'd individuals, because they cannot be divided into any more of the same name and nature.

12. And Individuals are of two sorts.

1. Such as are certain and determinate; the which may be expressed three waies.

1. By a proper name, as Alexander, Paul; which signifies some certain and determinate particular.

2. By a Pronoun Demonstrative; as this man.

3. By Circumlocution or Paraphrase, as the Apostle of the Gentiles, that is, Paul.

2. Such as are uncertain and indeterminate, which doth indeed express a particular thing

thing, but this or that indefinitely, as some man.

3. An *Universal simple Theam*, otherwise called a *Predicable*, may be spoken of two ways.

1. By *declaring what a thing is*, and then it is spoken of such things as do differ; either

1. In *Species*, and is called *Genus*, as a living creature, colour; or

2. In *number only*, and is called *Species*, as a man.

2. By *declaring what kind of thing it is*, of which it is spoken, and that either,

Essentially, and is called *Difference*: or *Accidentally*, and that either.

Of necessity, and then it is called a *proper Accident*: as the *Risible faculty* in man, or

Not of necessity, and then it is called a *common or simple Accident*, as *white*.

CHAP. III.

Of Genus and Species.

A Genus or General may be taken two ways.

1. *Civilly*, and then amongst *Grammarians*, it noteth the distinction of *Sex*; but amongst *Orators* it is taken for a *Multitude* which had their beginning from some one; thus the *Romans* are said to be the *Genus* or race of *Romulus*: or else it is taken for that one from whence that multitude had it's beginning; thus *Romulus* is the *Genus* or person from whence the *Romans* had their rise.

2. *Logically*, and then it is *Universal*, which is spoken of many that do differ in the *Species*, by declaring what a thing is; and thus taken, it is either

Supream, and so a *Genus* as that it cannot be a *Species*; and of this sort there are ten *Generals* or *Predicaments*; or

9 *Subaltern*; and so a *Genus*, in respect of those things which are contained under it, and a *Species* in regard of that, under which it is it self contained, as a *living creature*.

2. A *Species* also may be taken two ways.

1. *Civilly* as it is used amongst *Orators*, and so it is taken for the *external form*, and *beauty of the body*.

2. *Logically*, and so it is an *Universal*, which may be spoken of *many*, that differ in *number only*, by declaring what a thing is. The *Genus* in this definition is this word *Universal*, the rest of the definition is put for the *difference*, in which by these words, *spoken of many by declaring what a thing is*, *Difference* and *Accident*, whether proper or common, are both excluded; and by these words *differing in number only*, *Genus* is excluded also.

3 A *Species* is either

Subaltern, that is *species* of one and *Genus* of another; or

Most Special, that is so a *Species*, as that it cannot be a *Genus*, as a *Horse*, a *man*.

4. The *Canons* or *Rules* of *Genus* and *Species* are these following.

1. Every *Genus* must have two or more *Species*.

2. Nothing can be said of the *Genus*, which may not be also said of every *Species*; and the *Species* is conserved in every *Individual*.

3. Every

3. Every *Genus* and *Species* may be alike predicated of all that are under them.

CHAP. IV.

Of Difference.

Difference is threefold.

1. *Common* which is some *seperable Accident* that doth distinguish one thing from another, as *white*, to *walk*, and doth belong to the fifth predicable: It is called *Difference* as it makes to differ, and an *Accident* because it is *inherent*.

2. *Proper*, which is either an *inseperable Accident*, in the fifth predicable, or a *proper Accident* in the fourth predicable, as *Quantity*, *Risibility*.

3. *Most proper*, by which one thing doth differ from another *essentially*: and this is that *Difference* which belongs to this third predicable.

In which we are to consider three things.

First what this *Difference* is, and it may be defined three ways.

1. *Difference is an universal, by which one Species is essentially distinguished from another.*

thus Rationality doth distinguish a man from a beast.

2. *Difference is an Universal, according to which a Species doth excel its Genus: because a Species doth in it's essence contain such differences as the Genus in its essence doth not contain. Thus man by reason of his Rationality doth excel a living creature in General, which is the Genus of man.*

3. *Difference is an universal, which may be spoken of many differing in Species or number, and declaring essentially what kind of thing it is of which it is spoken. And this is the definition of difference, as it is a predicable.*

Secondly, we are to consider how many fold this difference is, the which is either 1. *Divisive*, by which the Genus is divided into its several Species; as by *rational* and *irrational*, a *living creature* is divided into a *man* or a *beast*.

2. *Constitutive*, which doth essentially constitute some Species, and this is two fold.

1. *Generical*, which doth constitute some remote Species but not the next, for the next is the Genus; thus *sensibility* in respect of *man* is a *Generical* difference constituting first a *living creature* and remotely *man*. And this is always spoken of many differing in Species or number.

2. *Specific*, which doth constitute the

nearest Species; as *rationability* doth constitute *man*.

3. We are to consider its properties which are six.

1. Every difference is, an *Essential part* of its Species, and of every individual of which it is spoken.

2. Every Difference is *Divisive*, in respect of its superior, and *constitutive* in respect of its inferior.

3. Every difference is in *nature* before its Species, and is the *internal cause* thereof.

4. No difference is *directly* in the *predicamental order*, but *indirectly* only and *collaterally*.

5. Every difference is *immediately* spoken of one, viz. its Species, and *mediately* of many.

6. No difference is spoken of that Species of which it is the difference, by way of *more* and *less*.

CHAP. V.

Of Proper and Common Accidents.

AN *Accident* is taken two ways.

1. For *all* that which is not of the *essence* of the thing: and thus a *man* in respect of an *house* may be called an *Accident*, because he is not of the *essence* of an *house*, but so it is not taken here.

2. For *that only*, which is *inherent* in some subject, and this is two fold, *Proper* and *Common*.

1. A *proper Accident* is that which is convertible with his *Species*, perpetually inherent in every of them, and in no other; and this doth constitute and belong to the fourth predicable.

It may be other ways defined, thus

A *proper Accident*, is an universal, which may be spoken of many differing in *Species* or number accidentally, and of necessity declaring what kind of subject it is of which it is spoken: and thus risibility is spoken of *man*. And this is two fold.

1. *Generical*, which flows from the *essence* of the *subaltern Species* or highest *Genus*, and this is always spoken of many *Species*.

2. *Specific*

2. *Specific*, which floweth from the essence of the lowest *Species*, and this is spoken of one *Species* only, and many *individuals*.

2. *A Common Accident*, is that which is not convertible with his *Species*; and this doth constitute and belong to the fifth *predicable*; and may be otherwise defined three ways.

1. *A common Accident*, is an universal, which may or may not inhere in the subject, without the destruction of the subject, as man is the subject of *whiteness*, but the not being white doth not presently make him not to be a man.

2. *A common Accident*, is such an universal as is neither Genus, Species or Difference, no nor proper to the subject, though it be always inherent in it.

3. *A common Accident*, and an universal, which may be spoken of many, differing in Species or number; accidentally declaring what kind of subject it is, of which it is spoken inconvertibly, and thus *whiteness* is a common accident belonging to man.

A common Accident is twofold.

1. *Seperable*, which may be actually separated from the subject in which it is inherent; thus *whiteness* may be separated from man.

2. *Inseperable*, which cannot be actually separated;

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1. *A common Accident*, is an universal, which may or may not inhere in the subject, without the destruction of the subject, as man is the subject of whiteness, but the not being white doth not presently make him not to be a man.

2. *A common Accident*, is such an universal as is neither Genus, Species or Difference, no nor proper to the subject, though it be always inherent in it.

3. *A common Accident*, and an universal, which may be spoken of many, differing in Species or number; accidentally declaring what kind of subject it is, of which it is spoken inconvertibly, and thus whiteness is a common accident belonging to man.

A common Accident is twofold.

1. *Seperable*, which may be actually separated from the subject in which it is inherent; thus whiteness may be separated from man.

2. *Inseperable*, which cannot be actually separated.

seperated from the subject in which it is inherent, but only in the mind or understanding; thus *blackness* is inseperable from an *Æthiopian*, though in speaking of one, I am not alwaies bound to consider his *blackness*.

The *Canons* or *Rules* are these,

1. Every Accident is in some Subject, and alwaies inherent in it.

2. Every Accident, if it be seperated from the Subject in which it once was, perisheth.

3. No Accident can pass from one Subject to another.

4. Some accidents may be more or less in a subject, but not all.

5. Every accident is in nature after his subject.

6. Whatever is inherent in a subject is an Accident.

CHAP. VI.

Of the Antepredicaments.

Concerning *Simple Theams* we are to consider two things.

1. The several *ranks* or *orders* to which all *Simple Theams* may be reduced, and in which they may be ranked and placed.

2. The *way* and *means* by which they are or may be interpreted.

The particular *Orders* to which all *Simple Theams* may be reduced, are otherwise called *Predicaments*, of which we are to consider three things.

1. The *Antepredicaments*, which are first to be learned, because the knowledge of them conduceth much to the understanding of the *Predicaments* themselves.

2. The *Predicaments*, which are ten *Orders* to which, as is said, all *Theams* must be reduced.

3. The *Post-predicaments*, which must be handled after the *Predicaments*, because the perfect knowledge of the *Predicaments* cannot be attained without these.

I begin with the *Antepredicaments*, the which are three in *general*; and seven in *special*.

Special, to wit, three Definitions, two Divisions and two Rules.

The Definitions are of *Æquivocals*, *Univocals*, and *Denominatives*.

Æquivocals are such things as have their name common to many. But the reasons for which it is applied to many are diverse; as that Domestick living creature is call'd a *Dog*, and a certain *Star* in the Heavens is call'd a *Dog*; now the name *Dog* is common to both, but the domestick creature is call'd a *Dog* for one reason, to wit from *barking*; the *Star* is call'd a *Dog*, for another reason viz. the *Anology* that it hath to a *Dog*. So a living man and a painted man agree in the common name of *men*, but the reasons for which they are so called are diverse.

The common names which for diverse reasons are given to the several things signified by them, are called *Æquivocating Æquivocals*, and the things expressed by those names, are called *Æquivocated Æquivocals*, thus a man is an *Æquivocating Æquivocal*; a living man and a painted man are *Æquivocated Æquivocals*.

Æquivocals are either such as are.

1. By chance, of which no reason can be given for their being called by that common name, or

2. By

2. By *counsel*, of which some reason of dependency or similitude may be given for their being called by that common name, as a *living man* and a *painted man*, and those are *Synechdochically* called *Æquivocals by Analogy*.

Of both which these *Canons* are to be observed.

1. *Æquivocal* words if they be not distinguished, and taken in one sense, are of no use in any science.

Every *Ens* or *Entity* in respect of the ten *Predicaments*, is a common *Analogous* thing.

3. Every *Analogous* thing put by it self is to be taken in the most common signification.

Univocals, are such things as have a common name, and the reason for which it is applied to many, is one and the same in them all; thus the name of a *living creature* is common both to *man* and *beast*.

The common names which are for the same reason attributed unto many are called *Univocating Univocals*. And the things expressed by these names are called *Univocated Univocals*; thus a *living creature* is an *univocating Univocal*; and a *man*, a *Bull*, a *Lyon* are *univocated Univocals*.

Denominatives are such words, as being of

of near affinity in *sound* and *signification*, do differ in *termination*; as *Justice* and *Just*.

In every *Denomination* there are three things.

1. *The Form denominating*; and that is some *Accident* in the *Abstract*, which is inherent in the subject; as *Justice*.

2. *The Subject Denominated*, and that is a *substance* in which the form is inherent, as *Socrates*.

3. *The Denominative*, and that is some *Accident* in the *Concrete*, which is predicated of the subject, and riseth from the form, as *Just*.

The Form Denominating, and the *Denominative*, as *Justice*, and *Just*, in reference to

{ *The Word* { Agree in the *beginning*.
Differ in the *end*.

{ *The signification* { Agree in the *thing*, &
Differ in the *manner*.

The use of these *Definitions*, is, that the *form* of *predication* *Æquivocally*, *Univocally* and *Denominatively* may be the better known.

1. *Æquivocal predication* is in reference to the *name*, but not in reference to the *definition*, and thus every *ens* or *entity* is *predicated* of in the ten *predicaments*.

2. *Univocal predication* is in reference to the *name* and *definition* both; thus *superius* are

are predicated of the inferiours of the same predicament.

3. Denominative predication, is to be predicated in the Concrete, as an *Accident* is predicated of its subject, thus the *Accidents* in the nine last predicaments are predicated of the *Substances* in the first.

The Divisions belonging to the *Antepredicaments* are two, one is of *words* and the other of *things*.

A *Word* is either *Simple* or *Compound*.

A *Simple Voice* or *Word* is threefold.

1. In respect of the *sound* only, when one word doth signifie many things, as a *Dog*, and every equivocating equivocal.

2. In *substance* and *signification*, when more words than one, are used to express one thing as a *living creature*, for an *Animal*.

3. In *sound* and *substance* both, when one word doth express one only thing, as a *man*, an *Animal*.

A *compounded voice* or *word* is also threefold.

1. In respect of the *sound* only, as when more words than one are used to express one only thing, as a *living body* for an *Animal*.

2. In *substance* and *signification*, when one word expresseth diverse things, as a *Dog* is one word, but hath diverse *significations*, as every

every equivocating equivocal hath.

3. In *sound* and *substance* both, as when only they are diverse words, and these diverse words do signifie more things, as these things words *a learned man*, do signifie the *substance* information and the *quality* our

Things are either *Universal* or *Particular*, ry and both of them are either *substances* or *accidents*, sub

1. *Universal substances* are spoken of the subject but are not in it, as a *man* is predicated of *Socrates* and *Plato*, but inhereth not in any subject, su

2. *Particular substances* are neither predicated of the subject, nor inherent in it, because they are *individual substances*, as *Socrates*, a

3. *Universal accidents* are both predicated of, and inherent in their subjects, as *Whiteness* is spoken of *this*, or *that Whiteness*, and may be inherent in *a man*, or *a wall*, or *a ship*.

4. *Particular accidents* are not predicated of any subject, but are inherent in some, as this *whiteness* is in *Socrates*.

A *Subject* is either of *inhesion* or *predication*.

A *Subject* of *inhesion* is that in which some *accident* doth inhere; thus a *wall* in respect

of

of *whiteness* is a *subject* of *inhesion*, and *accidents* only are capable of such a *subject*.

A *subject* of *predication*, is that of which any thing is *predicated essentially*: and so every *inferiour* thing is the *subject* of his *superiour*; every *universal substance* as well as every *universal accident*, is capable of such a *subject*.

A thing may be said to be *inherent* in a *subject* eight several ways.

1. *Perfectively*, as a *part* is in the *whole*, and thus a *hand* may be said to be in a *man*.

2. *Comprehensively*, as the *whole* is in its *parts*, and thus a *man* may be said to be in all his *members*.

3. *Potestatively*, as a *Species* in its *Genus*, thus *man* may be said to be in an *Animal*.

4. *Actually*, as a *Genus* in its *Species*, thus an *Animal* may be said to be in a *man*.

5. *Authoritatively*, as a *King* in his *Kingdome*.

6. *Eminently*, as a thing in the *end* thereof, and thus *vertue* may be said to be in *happiness*.

7. *Circumscriptively*, as a thing in its *place*, thus *Socrates* may be said to be in a *house*.

8. *Inherently*, as an *Accident* in its *Subject*,
and

and thus *heat* may be said to be in fire.

Of these several ways we are here to understand the last only, to wit of *Inhesion*, as *heat* is in fire, or as an *accident* in its subject.

The first *Antepredicamental* rule is this. *Whatever may be spoken of the predicate, may be spoken of the subject of that predicate also; and whatsoever may be spoken of an Animal, may be spoken of every sort of Animals, as of men, beasts, and such like.*

The *limitations* of this rule are many, but the most considerable are these three.

1. That you proceed not from *words* to *things*, that is, from *words* of the first, to *words* of the second intention: whence it follows not: *Animal* is a *Genus*, *A man* is an *Animal*, therefore *man* is a *Genus*.

2. That you pass not from one side of the *predicamental* order, to the other, and hence it doth not follow; *Man* is an *Animal*, an *Animal* is *rational* or *irrational*, therefore *man* is *rational* or *irrational*.

3. That you proceed not from the *concret* to the *abstract*; and hence this doth not follow; *A man* is *just*, *Justice* is a *quality*; therefore a *man* is a *quality*.

The second *Antepredicamental* rule hath two parts. The first is this; *Subaltern Generalls* have the same *Species* and *differences*

as a *body* and an *Animal* have the same differences.

The second part is this: *Generals* not *Subaltern* have not the same *Species* and differences; as *substance* and *qualitie*.

They are said to be *subaltern Generals*, whereof one is essentially contained by the other; as an *Animal* and a *Body*.

And they are said not to be *Subaltern Generals*, where the one is not essentially contained of the other; as an *Animal* and a *Science*.

The chief use of this *Rule* is, to prevent the confounding of the *Predicaments*, and to distinguish things between themselves, that do belong to diverse *predicaments*.

CHAP. VII.

Of the Predicaments in General.

THE particular orders or *predicaments*, to which all simple *Ideas* may be reduced are ten, of which some are more principal some less.

2. The more principal *predicaments* are the first six; and these are of two sorts; one of *substance* and the other of *accidents*.

3. *Predicamental*

3. *Predicamental ranks or Orders of Accidents* are of two sorts. 1. *Absolute* as the predicaments of *Quantity, Quality, Action and Passion*, 2. *Relative* as the *Predicament of Relation*.

4. The *less principle predicamental ranks or orders*, are these four: *When, where, situation, and Habit*. And in these ten predicaments are all to be ranked, which can be predicated or spoken of any thing, *Directly, Collaterally, or by Reduction*.

First then, *Directly and primarily*, every *supream Genus*, or every thing of which the *supream Genus* may be predicated essentially, may be placed in the *predicamental scale* and thus all *Generals, Specials, and Individuals* are placed in them.

Secondly, Collaterally or sideways; and so some things are placed in the *predicamental order*, which are not spoken or predicated of the *supream Genus*, but yet do divide the *Generals* and constitute the *Specials*, and thus *essential differences* only are there placed.

Thirdly, indirectly or by Reduction: thus *Matter and form* are in the *predicament of Substance*; a *point and unit* in *quantity*, and a *proper accident* is in the same *predicament with its Species*.

The *Canons or Rules* are four.

1. All

1. All words of Ambiguity or doubt, at least before they be distinguished and limited, with all feigned and impossible things, are excluded the predicamental order.

2. Every real finite, simple and Univocal thing is in some predicament, directly, collaterally or by Reduction.

3. Individuals are in some predicament, not for themselves, but by reason of their Species.

4. No one and the same numerical thing, can be in diverse predicaments, either in one respect or in diverse.

C H A P. VIII.

Of Substance.

A Substance is a thing subsisting of itself, and it is either first or second.

2. The first substance is a singular substance, or a substance that cannot be predicated of its subject; as Alexander, Bucephalus.

3. The second substance is an universal substance, or a substance which may be predicated of its subject, as a man, a horse.

4. The first substance is chiefly and properly a substance, and among the second substances, every one is by so much more a substance,

by how much it is nearer to the first.

The Rules or Properties are six.

1. *A Substance is not in its subject.* This agreeth to every substance, and to every substance only, but not only to those which are compleatly so, but to the differences and parts of substances also.

2. *A Substance is univocally predicated of those things of which it is predicated.* This agreeth to all second substances and their differences, and no other, for the first substances are not predicated of any subject.

3. *Every first substance, doth signifie some particular thing,*

4. *A substance, as it is a substance, is not contrary to another, but as it hath accidents or qualities: thus fire and water are contrary, not as they are substances, but in reference to their qualities of heat and cold. &c.*

5. *A Substance, as it is a substance, is not varied by degrees, or receiveth not more and less, but the variance or comparison is in respect of accidents; as a wise man and a fool, an old man and a child: one water hotter than another; these differ in qualities not in substance.*

6. *One and the same numerical substance, is capable of contrary Accidents. As water may be now seething hot, and anon as cold as Ice.*

CHAP. IX.

Of Quantity.

Hitherto we have spoken of the predicament of Substance, those of Accidents now follow; and first those that are absolutely so; as Quantity, Quality, Action, and passion.

2. Quantity is an absolute Accident, by which a thing is said to be great, in bulk or number.

3. And hence quantity may be said to be twofold, continued or dissevered.

4. Continued Quantity is that, whose parts are joyned together by a common terme.

5. Dissevered Quantity is that, whose parts are not joyned together by a common term, and this is nothing else but number.

6. Continued Quantity, is either successive, whose parts consist in succession; and then it is time; or permanent, as magnitude, and place.

7. Every Magnitude is either, a line, a superficies or a body.

8. A line is a Magnitude which can be divided but one way; the limit whereof is a point, for every line is made, continued, and bounded with a point.

9. A *Superficies* is a *Magnitude* which may be divided two ways; the term or limit thereof is a line.

10. A *Solid* or *body*, is that, which may be divided three ways, namely by length, breadth, and thickness, whose term or limit is a *superficies*.

11. *Place* is that which measureth something beside the subject in which it is, namely the thing which is placed; this seems to be refer'd to a *superficies*: for, *Place* (according to Aristotle lib. 4th phys. cap. 14.) is the *superficies* next to the body that is contained in it.

The *Canons* or *Rules* are three.

1. Nothing is contrary unto *Quantity* in it self, but in reference to its *Qualities* only; thus winter is contrary unto summer, in respect of heat and cold.

2. *Quantity* cannot receive more or less. As one house is not more or less a house than another; though one be a greater house than another.

3. Things may be said to be equal or unequal, in respect of *Magnitude* or greatness.

CHAP. X.

Of Quality.

Quality is an absolute accident, by which it is simply and determinately declared what kind of thing that subject is, of which it is the quality.

2. Quality is the most copious of all the predicaments; and it is of two sorts, *Patible* or *Impatible*.

3. An *impatible* quality, is such a quality, as doth not cause any passions in the senses, or any way affect them: and this is either *innate* or *acquired*.

4. An *acquired* quality, is such a quality, as is begotten by labour; and this Aristotle maketh the first species; and this is either *hardly* removed from the subject, and is called a *habit*, as *vertue*: or *easily* removed from the subject, and is called *disposition*, as a *disposition unto vertue*.

5. An *innate*, or *inbred* quality, is such a quality as is *natural*, and this Aristotle maketh the second species; this maketh the subject apt and fit for action, and is some *natural faculty* or *power*, as *risibility* is a *faculty* naturally belonging unto man.

6. A *Patible quality*, is such a *quality* as doth affect the senses and causeth passion in them: and that either, by it self or by accident.

7. A *Patible quality* affecting the sense by it self, Aristotle maketh the third species, and is that which either affecteth the body or the mind.

8. A *Patible quality* which doth by it self affect the body, is either such a *quality* as cannot be easily moved, as *whiteness* or such a *quality* as may be easily removed, and is some passion of the body, as *blushing*.

9. A *Patible quality* which doth of it self affect the mind, is also either hardly removed, as *inveterate anger*, or easily removed, as some sudden passion of love, or hatred.

10. A *Patible quality* which doth affect the senses, or causeth passion by accident, Aristotle maketh the fourth species, and this is external proportion, either in things natural, and then it is the form of the thing, or in things artificial, and then it is the Figure.

11. To the first species of quality, do all the habits of the body belong; as *health*, *sickness*, and all kind of *diseases*; and all *infused habits*, as *faith*, *charity*, and the *gift of tongues*; with all disciplines, whether of arts
or

or sciences both *speculative* and *practical*, as *Logick*, *Geometry*, *Physicks*, *Metaphysicks*, and *Divinity*, and all both *vertues* and *vices*.

12. To the *second species* of *Quality* belong all *faculties* proceeding from the *essential forms* of all *substances*; as the *faculty* of *willing*, *speaking*, *laughing* in *man*, of *neighing* and *running* in a *horse*; and the *vertue* of *berbs*, *mettals* and *stones*; all *occult qualities*, as *sympathy*, and *Antipathy*, and all *influences* of *celestial bodies*, the *temperament* of the *body* and *disposition* of the *mind*, and such like.

13. To the *third species* of *quality* belong all *objects of sense*, as of *seeing*, *tasting*, *smelling*, *bearing* and *feeling*.

14. To the *fourth species* of *quality*, belong all *Mathematical figures*, with all *natural* and *artificial forms* of *bodies*.

The *Canons* or *rules* of *qualitie* are three.

1. *Qualities* only admit of *contrarieties*; as *heat* and *cold*; the *contrariety* of *qualities* is most discernable in the *third species*, sometimes in the *first*, but not so frequently in the *second* and *fourth*.

2. *Qualities* do admit of *degrees*, as *more* and *less*; but this doth not belong to all *qualities*.

3. Things in reference unto their qualities may be said to be like or unlike.

CHAP. XI.

Of Action.

Action is an accident, by which a subject is said to be doing: and that by one of these three waies.

1. By some *intrinsic* quality; as fire by its heat acts in the water.

2. *Instrumentally*, as he that effects some thing with a sword or gun, or such like.

3. By the very *formality* of action, and so it is to be taken in this predicament.

2. Action, as it is taken in this predicament is twofold *immanent* or *transient*.

3. An *immanent* action is that, which doth not cause any real change in the thing that suffers, as understanding, sight.

4. A *transient* action is that, which doth occasion a real change in the thing that suffers, as heat, cold &c.

The Canons or Rules of Action are three.

1. Action doth admit of contrariety.

2. Actions

2. *Actions are capable of more and less.* These two rules are not proper unto actions in respect of themselves, but by and for their qualities, by means of which the Agent acteth: nor are they agreeable to every action: and this is most proper unto action.

3. Every action doth of it self infer passion.

5. Passion is an accident by which the subject is called patient; or, it is the effect and a certain reception of action: for every passion is received not so much by the condition of the agent, as by the disposition of the patients.

6. Passion is either transmutative or intentional.

7. A transmutative passion, is that which maketh some real alteration in the patient; and answereth unto a transient action.

8. An intentional passion, is that which terminateth the action without any real alteration in the patient; and this answereth to an imminent action.

The Canons or Rules of Passion are three.

1. Passion doth admit of Contrariety:

2. Passion admitteth of more and less; both these are to be understood, as in the predicament of action hath been declared.

3. Passion is of it self and immediate infer-

red from action: and this is most proper unto passion.

CHAP. XII.

Of Relation.

Hitherto we have spoken of such predicaments as are absolute accidents, come we now to that which is respective, namely relation.

2. Relation is a respective accident, by which one thing is predicated of another, or by some way may be referred unto another.

3. Relation is twofold, intentional or real.

4. Intentional Relation is that by which some second intention is referred to another; thus Genus and species, the cause and the caused, the subject and the accident, are things that are related.

5. Real relation is that by which the thing itself is referred unto another; and this is twofold.

1. Accidental, when one thing is referred not in respect of its essence or na-

ture, but only by *Accident*, as *possessor* and *possession*.

2. *Essential*, when one thing is referred unto another according to its *nature* and *essence*, as *Father* and *Son*, *Master* and *servant*.

6. In every *Relation*, two things are required, the *subject* and the *term*.

7. That is called the *subject*, which is referred unto another, and that the *term*, to which the *subject* is referred.

The *subject* is called the *Relate*, and the *term* is called the *Correlate*.

9. The *relate* and *correlate* are mutually referred to one another; and that by a double relation; in which reciprocation, that which is the *subject* of one relation is the *term* of the other, and the contrary.

10. In like manner that which is the *relate* in one relation, is the *correlate* in the other, and the contrary.

11. Every *relate* or *respective* is founded in some *absolute predicament*; as *equality* in *quantity*, *likeness* in *quality*, *Paternity* in *action*.

12. *Relates* and *Correlates*, as they are such, are both together in *nature* and *knowledge*, and so do mutually put or take away one another, as well in *being*, as in *knowing*.

13. *Relates*

13. *Relates* are taken two ways.

1. *Materially* for those things with which the *Relations* do agree : as a *father* is taken for the *man begetting*, the *Son* for *him that is begotten*; and so they are not together in *nature*, for the *father*, as a *man*, must needs be before the *son*.

2. *Formally*, for that very relation which is in the subjects, by which the terms are mutually referred to one another ; as the *father* to his *son*, and so they are in *nature* together.

14. *Knowledge* and *knowable* are taken three ways.

1. Both *Actually*, thus, *that* is called *knowledge*, by which we actually know a thing; *that knowable*, which is actually known; and so they are in *nature* together.

2. Both *potentially*, as *that* is called *knowable*, which may be known ; and *that knowledge*, which we may know : and so also, they are in *nature* together.

3. One *Actually* and the other *potentially*; and so *knowledge* is taken for that which we actually know, and *knowable* for that which may be known, and so they are not both together in *nature*.

The *Canons* or *Rules* of *Relates* are three.

1. *Relates* admit of *contrariety*. A *Relate* is not.

not contrary to its *Correlate*; but *one Relate* is contrary to *another*: yet not in respect of *themselves* but in respect of *their subjects*. This rule therefore doth not hold in all, but in such *relates* only, which have contrary *foundations* or *subjects*; thus a *friend* and an *enemy* are contrary, because the *foundations* of *friendship* and *enmity*, to wit, *wishing well* and *wishing ill*, are contrary.

2. *Relates* are capable of *more* and *less*: this rule also holds in respect of the *subject* or *foundation*; and therefore in those *relates* only, which have a *changable subject* or *foundation*. For when the *subject* or *foundation* is varied, the *Relation* is intended or remitted. For example, *unequal things* are made *more* or *less unequal*, when *Quantity*, which is the *subject* of *inequality*, is in one of the two, *more* or *less*.

3. *Relates* are convertible; that is, every *Relate* is referred to its reciprocal *Correlate*; as a *master* is the *master* of a *servant*, and a *servant* is the *servant* of some *master*.

6. A Patible quality, is such a quality as doth affect the senses and causeth passion in them: and that either, by it self or by accident.

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4. *Intentional Relation* is that by which some
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14. *Knowledge* and *knowable* are taken three ways.

1. Both *Actually*, thus, *that* is called *knowledge*, by which we actually know a thing; *that knowable*, which is actually known; and so they are in *nature* together.

2. Both *potentially*, as *that* is called *knowable*, which may be known; and *that knowledge*, which we may know: and so also, they are in *nature* together.

3. One *Actually* and the other *potentially*; and so *knowledge* is taken for that which we actually know, and *knowable* for that which may be known, and so they are not both together in *nature*.

The *Canons* or *Rules* of *Relates* are three.

1. *Relates* admit of *contrariety*. A *Relate* is not

not contrary to its *Correlate*; but *one* *Relate* is contrary to *another*: yet not in respect of *themselves* but in respect of *their subjects*. This rule therefore doth not hold in all, but in such *relates* only, which have contrary *foundations* or *subjects*; thus a *friend* and an *enemy* are contrary, because the *foundations* of *friendship* and *enmity*, to wit, *wishing well* and *wishing ill*, are contrary.

2. *Relates* are capable of *more* and *less*: this rule also holds in respect of the *subject* or *foundation*; and therefore in those *relates* only, which have a *changable subject* or *foundation*. For when the *subject* or *foundation* is varied, the *Relation* is intended or remitted. For example, *unequal things* are made *more* or *less unequal*, when *Quantity*, which is the *subject* of *inequality*, is in one of the two, *more* or *less*.

3. *Relates* are convertible; that is, every *Relate* is referred to its reciprocal *Correlate*; as a *master* is the *master* of a *servant*, and a *servant* is the *servant* of some *master*.

C H A P. XIII.

Of the four last Predicaments.

Hitherto I have spoken of the principal predicaments; the less principal now follow and they are four, *When, Where, Situation, Habit.*

2. *The Predicament When, is an Accident, by which finite things are said to be in time, past, present, or to come.* The words belonging to this predicament, make answer to such questions, as are made by this word, *When*, as *to day, to morrow, yesterday*, and the like. The properties thereof is, to accommodate time, to persons, things or Actions.

3. *The Predicament where, is an Accident, by which things finite are said to be in some place; where, is not the place it self, but notes the manner or circumstance of place, and maketh answer to such questions as are made by this word where; as at home, within, without, in this or that Countrey, &c.* The property thereof, is to accommodate place, to persons, things, and actions.

4. *The Predicament of Situation is a certain*

tain Ordination of parts and generation, or, a placing of parts in Generation: to make up situation a threefold habitude is required.

1. Of the parts of some whole among themselves.

2. Of the parts of some whole unto that whole.

3. Of the parts and the whole in reference to place.

Yet every ordination of parts is not site or situation, but that only which they have in the whole by Generation. The propertie thereof is to be the nearest assistant unto substance of all the extrinsecal respective accidents.

All gestures and positions of body belong to this, as standing, sitting, walking, &c. Not as they signifie these actions, but as they signifie the position and order of the parts in the whole, or in some place.

5. The predicament of Habit, is an accident by which some garment, or something like a garment, is put about, hanged upon, or any other way joyned to a body. The body having it, is a substance; the thing habiting is always some artificial form belonging to the fourth Species of Qualitie. The Application of this to it, is that which maketh this predicament; The propertie thereof is always to be inherent in many,

many, in the *habit*, and in him that hath it, but in divers respects; for it is in the *body* that hath it, as in a *subject*, in the *habit* or *thing framed*, as in a *cause*.

To this belong all kind of *garments*, whether they be such as are used for *necessity*, as *shoes* for the *feet*, and *cloaths* for the rest of the *body*; or for *distinction*, as a *Mitre*, a *Gown* whether for *Divines*, *Lawyers* or *Citizens*; or for *ornament*, as *rings*, *Jewells*, *Deckings*, and the like.

CHAP. XIV.

Of Opposition.

HAVING done with the *Antepredicaments* and the *Predicaments* themselves, the *Postpredicaments* now follow, and they are four.

Opposition, *Order*, *Motion* and *Manner of having*.

2. *Opposition* is such a repugnancy of two simple terms, as neither the one can agree with the other, nor both of them with a third, after one and the same manner.

3. One of the opposites is either opposed to one

one or to many; those *oppositions*, where one is opposed to many, are called *Disparates*; as a man and a horse, of which *Aristotle* in his *Logick* makes no mention, nor are they to be reckoned amongst the kinds of *opposition*.

4. Those *oppositions* where one is opposed to one, are either of a thing and a thing, or of a thing and not a thing.

5. *Opposition* of a thing and a thing; is either *Relative* or *Contrary*.

6. *Relative opposition*, is between the *relative* terms, as the *relate* and his *correlate*: for though the *relates* do mutually depend upon one another, in reference to their *simple being*, yet are they opposed to one another in reference to their *being in a subject*: as *father* and *son*, but this is the least kind of *opposition*: The conditions belonging to these are set down in the *Predicament of Relation*.

7. *Contrary opposition* is between *contrary* terms: And these are called *contraries*, that being contained under the same *Genus*, are at the greatest distance between themselves, and mutually expell one another, from the same subject, that is capable of them; as *heat* and *cold*.

8. *Contraries* are of two sorts, *mediate* and *immediate*.

9. *Immediate contraries* are such as admit
of

of *no medium* between them, but the one of them is always in the subject, that is capable of them, as *like* and *unlike*, *health* and *sickness*.

10. *Mediate contraries* are such as do admit of *some medium*; so that though one be expelled it is not necessary that the other should be in that subject, from which the first is expelled, as *white* and *black*.

The *Canons* or *Rules* of *Contraries* are these following.

1. *True contrarietie by it self is not to be found but in qualities by themselves, and absolutely taken.*

2. *Contraries in the highest degrees, cannot be in the same subject; so what is hot in the highest degree cannot be cold at all; but in remiss degrees they may both be in the same subject.*

3. *One of the contraries being remitted, the other is intended or heightened and the contrary: for every subject capable of two contrary qualities, must needs be filled up with the whole possible latitude of one of them.*

11. *Opposition of a thing and not a thing, is either privative or contradictory.*

12. *Privative opposition, is between Habit and privation. And Habit is the presence of a thing in a fit subject; but privation is the absence*

ofence thereof: as sight is a habit, blindness, privation.

The Canons or Rules are three.

1. Habit and privation are about the same subject. And hence privation cannot properly be, but in that subject which is capable of the Habit; a man therefore may be said to be blind, but a stone cannot.

2. Privative opposition requires determination of a certain time; neither can privation be spoken of a subject, but after the time that by its nature and fitness it might receive the habit; as none can be said to be bald, until the time that according to nature, they should have hair.

3. From privation to habit there is no regress naturally, the privation being perfect; that is, such as doth take away the act, and next beginnings of habit, and leaveth nothing in the subject but the remote beginnings thereof; thus he that is once quite blind, cannot ordinarily and by natural means ever see again,

13. Contradictory opposition is between contradictory terms. And those things are said to be contradictory, which are expressly contrary as affirmation and negation; as a thing and not a thing, a man and not a man.

The Canons or Rules are two.

1. Contradiction is the first of all oppositions,
and

and so the measure of all the rest: for in every opposition there is virtually included a contradiction; and the opposition is to be thought so much the greater, by how much it cometh nearer to a contradiction.

2. Between contradictory things, there is no medium; neither of abnegation, or of the subject, (and therefore one of the contradictory things is affirmed of a thing, and not a thing) nor of participation, or of the form.

CHAP. XV.

Of Order, and of that which is said to be together, before, or after.

ORder is that, according to which some thing is said to be before, or after another thing, or together with it.

2. A thing may be said to be before or after another five several waies. 1. In time. 2. In nature. 3. In disposition, or order. 4. In honour. 5. In Consality.

3. That is said to be first in time, that is the most ancient; thus Romulus was before Cato, and the City Pergamus before that of Rome.

4. That is said to be first in nature, which

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which cannot be reciprocally affirmed in consecution of existences; as, there is a *man*, therefore there is a *living creature*, but it doth not follow, there is a *living creature*, therefore there is a *man*; a *living creature* therefore is in nature before a *man*, and every *Genus* before its *species*.

5. That is said to be first in order or disposition, which is nearest the beginning: Thus the *Exordium* in an oration is said to be before the *proposition*, the *proposition* before the *narration*, the *narration* before the *confirmation*, the *confirmation* before the *refutation*, the *refutation* before the *conclusion*; and in every *science* or *discipline*, that is first which is put in the first place, and thus letters are before syllables.

6. That is said to be first in honour or dignity, that is the most worthy; thus a *King* is before his *Subjects*, a *Father* before his *Son*, a *Master* before his *Servant*, *Gold* before *Silver*, and *Vertue* before *Gold*.

7. That is said to be first in Causality, which is any way the cause of another's existence; thus the *Sun* is before *Light*.

8. So many waies as a thing may be said to be before another, it may also be said to be after.

9. So many waies as a thing may be said to be

be before another, it may be also said to be together with another; but two of the ways are more usual than the rest, together in time, and together in nature.

10. They are said to be together in time that are existent at the same time.

11. Things may be said to be together two ways, primarily and secondarily.

12. They are said to be primarily together in time, which begin to be at the same time, and they are said to be secondarily together in time, when the one begins to be, before the other doth cease to be; thus Aristotle and Plato are said to be contemporaneous, or together in time; though Plato was born before Aristotle, and did also die before him.

13. Things may be said to be together in nature two ways; first simply and absolutely, and then in respect of some third.

14. Things are said to be together simply and absolutely, which are reciprocally together; according to the consecution of existence, but so that the one is not the cause of the others existence. Thus the relate and correlate are together in nature; and two effects depending upon the same next cause, as risibility and docibility in man.

15. Things are said to be together in respect of some third thing, which under the same

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same Genus are in division opposed to one another; thus a *man* and a *beast* are said to be together in nature, not simply and absolutely in respect of themselves, but in respect of a living creature, for a living creature is predicated of them both together, and not of one first, and another after. In this a *Synonymous Genus* is distinguished from a *homonymous* or *equivocal Genus*; because this is not predicated of its several species together, but of one first, and another after.

C H A P. X V I.

Of Motion.

Concerning Motion, four things are to be considered. 1. *The Præcognita*. 2. *The Definition*. 3. *The several kinds*. 4. *The Rules* belonging to it.

2. The *Præcognita* are either such as concern the definition, or such as concern the division thereof.

3. The *Præcognita* concerning the definition of motion, are three. 1. The subject in which it is. 2. The two terms from which, and to what. 3. The measure, or instant time, and from these three every motion must be defined.

4. The

4. The *Præcognita* concerning the division of motion, or the several kinds of it, are also three.

1. Motion is taken two waies, viz. either generally for any mutation, whether it be in time, or in an instant, and thus it comprehendeth Generation and Corruption; or specially for some mutation which is made and measured by time, & thus it comprehendeth these four species, augmentation, diminution, alteration and location, and not Generation & Corruption.

2. Motion as it is divided here, is motion generally taken, and as it comprehendeth all these mutations.

3. Motion, although it be put as a post-predicament, yet it is also in a predicament, but in a diverse manner; it is in the predicament of position as it is in its own nature, but here as it is taken in reference to its terms, from which, and to what.

5. Motion, in the general is thus defined. Motion is a mutation made in the subject, (viz. either in the first matter, or in the body) from one term to another, either in time, or in an instant.

6. Motion is twofold instantaneous or successive.

7. Instantaneous motion is that, which is made in an instant, and this is Generation, or Corruption.

8. Generation is an instantaneous motion, which

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which causeth a mutation, either in the first or second matter, as in the subject, by the privation of form as the term from which, to another form as the term to which, the motion is made.

9. Corruption is an instantaneus motion, which maketh a change in the same matter from a substantial form to the privation thereof, or from a thing to not a thing.

10. Successive motion, or motion that is made in time, is either a motion to quantity, to quality, or to place.

11. Motion to quantity, is that, whose terms are in quantity, and this is either augmentation or Diminution.

12. Augmentation is such a motion, as maketh a successive mutation in the body, from a less quantity to a greater.

13. Diminution is such a motion, as maketh a successive mutation in the body, from a greater quantity to a less.

14. Motion to quality, otherwise called alteration, is a successive mutation from one contrary quality to another.

15. Motion to place, or local motion, is such a motion, as maketh a successive mutation in the body, by removing it from one place to another.

The Canons or Rules to be observed, are these five following.

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I. Every

1. Every motion is distinguished by its own term to which it is made, considered formally; for although that *Augmentation* and *Diminution* are to quantity, yet the motion of the one is to a less, and the other to a greater quantity.

2. Some motions are distinguished by their measure, as *Generation* and *Corruption* are distinguished from the rest, for that they are effected in an instant, whereas all other motions are performed in time.

3. Some motions are distinguished by the subject, as *Generation* and *Corruption* are in the first matter, other motions in the body.

4. Rest is privatively contrary to all motions in the term from which it moves: for, rest is the privation of motion, viz. of subsequent motion, though it be the perfection of the precedent.

5. Those motions are adversly contrary, whose terms are adversly contrary; for the motion from white to black, is contrary to the motion, from black to white.

C H A P. X V I I.

Of the manner of Having.

A Thing may be said to be *had* eight several waies.

1. In reference to *habit and disposition*; and so it is referred to the predicament of *quality*.

2. In reference unto *quantity*; and so it is referred to the predicament of *quantity*.

3. In reference unto *Garments and other things which are about the body, or whole*; and so it is referr'd to the predicament of *Habit*.

4. In reference to the *having of a thing, in or upon some part*; as to have a ring upon a finger, and other things which are about the parts, and thus it is also referred to the predicament of *habit*.

5. In reference to the *part of a thing, as to have a hand*, and this is referred to *substance*.

6. In reference to a *vessel, as to have wheat*, and this is referred to the predicament *Where*.

7. In reference to a *possession*; as to have
D 2 a house

a house, and so it is referred to the predicament of *Relation*.

8. The last manner of *having* is the *having a wife*; and this according unto Aristotle, is the most improper manner of all. And this shall suffice to be spoken of *simple Theams*, whether *singular* or *universal*; and of the several *predicamental ranks* or *orders*, to which all *simple Theams* may be reduced, and in which they may be ranked and placed.

CHAP. XVIII.

Of a Proposition.

I Come now to speak of *compounded Theams*. And a *compounded Theam* is by some called an *Enuntiation* by others a *Proposition*.

An *Enunciation*, or a *Proposition* is an *indicative, congruous and perfect oration* signifying *true or false without any ambiguity*.

Concerning which we are to consider the *parts*, the *kinds* and the *affections*.

The *parts* of a *proposition* are two, viz. either the *parts signing*, or *signed*.

The *parts signing* are *simple terms*, and those

those are called Simple Terms whose parts can signifie nothing, when they are separated from the whole, or no such thing as they did signifie, when they were all joined together, and these are either Categorimatical or Syncategorimatical.

1. Categorimatical or significative terms, are such simple Terms as do by themselves signifie something perfectly, and these are either Nouns or Verbs.

A Noun is a simple term or word, which doth signifie some certain thing without distinction of time; as, a man, a horse.

A Verb is a simple term which doth signifie something with some distinction of time past, present, or to come, as, he runneth.

2. Syncategorimatical or consignificative terms are such simple terms, which of themselves do not signifie any certain thing, or constitute a proposition, but being joined with other words are significative, to express the manner of such a thing; and such are all words which serve to express the quantity of a proposition, as, *all, none, some* &c. all *Adverbs, Conjunctions, Prepositions and Interjections.*

The parts signed are *Compoundd Terms*, or such as do signifie the same thing being separated from one another, as they did
signifie.

signifie when they were joined together; and these terms are otherwise called *Oration*s, and an *Oration* is either imperfect or perfect.

1. An Imperfect *Oration* is that which leaves an imperfect sense in the mind of the hearer; as, a rational creature, a learned man.

2. A perfect *Oration* is that which leaves a perfect sense in the mind of the hearer; and this is either *not enunciative*; that is, such an oration as doth not express whether a thing be true or false, of which there is no use amongst Logicians; or *enuntiative*, that is such an oration, as doth express whether a thing be true or false; and this may be either *with ambiguity*, when some word is ambiguous; as there is a Dog in Heaven; or *without ambiguity* when there is no word ambiguous; as in this proposition, a man is a living creature. The *signed parts* of a proposition are these three, the *subject*, the *predicate*, and the *Copula*.

Place this between the 52 and 53 pages, and blot out the four first lines of the 53 page.

those are either categorematical, or syncategorematical as was shewed before.

The parts signed are three, the subject, the predicate, and the Copula.

1. The subject is all that which preceeds the Copula in the proposition, as, *man is a living creature*; there this word *man* is the subject.

2. The Predicate is all that which is spoken of the subject, as, *man is a living creature*; there these words *living creature*, is the predicate.

3. The Copula is the principal verb joining the predicate to the subject: and every proposition is some person of this verb substantive [*I am*] or of a verb adjective as in this proposition, *Socrates lived at Athens*.

But here two things must be observed. First, That the subject doth not alwaies preceed, and the predicate follow the Copula in order of the parts or terms, but in sense or construction; as in this proposition. *Hard is the way to vertue*. Where the way to vertue is the subject, and this word *hard* the predicate.

Secondly it is to be observed that a proposition may be either explicit or implicit.

1. Explicit, in which the three parts, the subject, the Predicate, and the Copula are

expressed, as in this proposition, *a man is a living creature.*

2. *Implicite*, in which all these three parts, the *subject* the *predicate* and the *Copula* are not expressed, but some of them implied, as, *I walk.* And may be resolved by turning the verb into a participle and using some person of this verb [*I am*] and thus this *implicite* proposition, *I walk,* is turned into this, *I am walking;* in which all the parts of a *proposition* are expressed.

As for the several *sorts* or *kinds* of *propositions* we must know, that a *proposition* is distinguished three ways, *viz:* 1. According to its *Substance*, *Quantity*, and *Quality.*

I. According to its *substance* or *parts* of which it doth consist; and so it is either, *Categorical* or *Hypothetical.*

1. A *Categorical proposition* is that which doth consist of one *subject*, one *predicate*, and one *Copula*, and therefore the matter thereof are simple terms; as, *a man is a living creature.* And this is either *Pure* or *Modal.*

A *pure categorical proposition* is, when the *predicate* is purely affirmed or denied of the *subject*, without expressing the manner of *Affirming* or *denying.*

A *modal Categorical proposition* is that in which, besides the *subject*, *predicate* and *copula*,
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we add some modification to shew how the predicate is in the subject. (but of these afterwards.)

2. A Hypothetical which doth consist of two Categorical propositions joyned together by some conjunction; as, if a man be a living creature, then a man is a body.

Secondly. A proposition may be distinguished in respect of its quality; and so first, it is affirmative or negative, and again it is in respect of quality, true or false; but if it be asked of what quality a proposition is? it must be answered, that it is either affirmative or negative. An affirmative proposition is that in which the predicate is affirmed of the subject.

A Negative proposition is that in which the predicate is denied of the subject, as a man is not a stone, and this is the formal quality of a proposition.

The material quality is that by which it is said to be either true or false.

That is a true proposition which doth agree with the thing, as, a man is a living creature, a man is not a stone. And that is a false proposition, which doth not agree with the thing, as, a man is a stone, a man is not a living creature.

And because the matter of a proposition may be sometimes necessarily true, sometimes manifestly false, and sometimes neither plain-

ly

ly true nor altogether false, the *quality* of a *proposition* in respect of the *matter* about which it is made, is *threefold*.

1. *Necessary*, when the *predicate* doth so agree with the *subject* from the nature of the thing, as that it cannot possibly be other-ways; as in this proposition, *man is a living creature*.

2. *Impossible*, when the *predicate* is so repugnant to the nature of the *subject*, as that it cannot be as it is affirmed; as in this proposition, *a man is a stone*.

3. *Contingent*, when the *predicate* hath such an indifferent relation to the *subject* that naturally it doth neither agree with it, nor yet is repugnant to it; as in this proposition, *a man is learned*.

In *necessary matter*, *affirmative propositions* are always true, *negative false*; as, *a man is a living creature*, is true; *a man is not a living creature*, is false.

In *impossible matter*, *affirmative propositions* are always false, *negative true*, as, *a man is a stone*, is false; *a man is not a stone*, is true.

In *contingent matter*, *propositions* whether *affirmative* or *negative*, are neither always true nor always false; for either of them both may be true or false; as, *a man is learned*; *a man is not learned*.

Thirdly

Thirdly, a proposition may be divided in respect of its quantity, into an universal, particular, indefinite and singular.

An universal proposition is that, which hath a note of universality added to a common or an universal subject; as, every man is a living creature.

A particular proposition is that, in which a note of particularity is added to an universal subject; as, some man is a living creature.

An indefinite proposition is that, in which no note whether universal or particular is put before the universal subject; as, a man is learned.

A singular proposition is that in which the subject is singular, whether it be a proper name, as Socrates is a Philosopher; or, whether it be a common name with a note of singularity set before it, as, this man is learned.

For the better understanding of that which hath been said we must observe.

1. That a note is not a part of a proposition but the sign of quantity in some proposition.

2. That some notes are universal; 1. Affirmative; as, every one, always, whensoever. 2. negative; as, none, no body, never. Some particular; 1. Affirmative; as, certain man, some body, sometimes. 2. negative; as, not every one

a base, and so it is referred to the predicament of *Relation*.

8. The last manner of *having* is the *having a wife*; and this according unto *Aristotle*, is the most improper manner of all. And this shall suffice to be spoken of *simple Theams*, whether *singular* or *universal*; and of the several *predicamental ranks* or *orders*, to which all *simple Theams* may be reduced, and in which they may be ranked and placed.

CHAP. XVIII.

Of a Proposition.

I Come now to speak of *compounded Theams*. And a *compounded Theam* is by some called an *Enuntiation* by others a *Proposition*.

An *Enuntiation*, or a *Proposition* is an *indicative, congruous and perfect oration* signifying *true or false without any ambiguity*.

Concerning which we are to consider the *parts*, the *kinds* and the *affectiōns*.

The *parts* of a *proposition* are two, viz. either the *parts signing*, or *signed*.

The *parts signing* are *simple terms*, and those

those are called **Simple Terms** whose parts can signifie nothing, when they are separated from the whole, or no such thing as they did signifie, when they were all joined together, and these are either **Categorimatical** or **Syncategorimatical**.

1. **Categorimatical** or **significative terms**, are such simple Terms as do by themselves signifie something perfectly, and these are either **Nouns** or **Verbs**.

A **Noun** is a simple term or word, which doth signifie some certain thing without distinction of time; as, a man, a horse.

A **Verb** is a simple term which doth signifie something with some distinction of time past, present, or to come, as, he runneth.

2. **Syncategorimatical** or **consignificative terms** are such simple terms, which of themselves do not signifie any certain thing, or constitute a proposition, but being joined with other words are significative, to express the manner of such a thing; and such are all words which serve to express the quantity of a proposition, as, *all, none, some &c.* all *Adverbs, Conjunctions, Prepositions* and *Interjections*.

The parts signed are **Compound Terms**, or such as do signifie the same thing being separated from one another, as they did signifie.

signifie when they were joined together; and these terms are otherwise called *Oration*s, and an *Oration* is either *imperfect* or *perfect*.

1. An *Imperfect Oration* is that which leaves an imperfect sense in the mind of the hearer; as, a rational creature, a learned man.

2. A *perfect Oration* is that which leaves a perfect sense in the mind of the hearer; and this is either *not enunciative*; that is, such an oration as doth not express whether a thing be true or false, of which there is no use amongst Logicians; or *enunciative*, that is such an oration, as doth express whether a thing be true or false; and this may be either *with ambiguity*, when some word is ambiguous; as there is a Dog in Heaven; or *without ambiguity* when there is no word ambiguous; as in this proposition, a man is a living creature. The *signed parts* of a proposition are these three, the *subject*, the *predicate*, and the *Copula*.

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2. The Predicate is all that which is spoken of the subject, as, *man is a living creature*; there these words *living creature*, is the predicate.

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But here two things must be observed. First, That the subject doth not alwaies precede, and the predicate follow the Copula in order of the parts or terms, but in sense or construction; as in this proposition. *Hard is the way to vertue*. Where the way to vertue is the subject, and this word *hard* the predicate.

Secondly it is to be observed that a proposition may be either explicate or implicate.

1. Explicite, in which the three parts, the subject, the Predicate, and the Copula are expressed,

expressed, as in this proposition, *a man is a living creature*.

2. *Implicite*, in which all these three parts, the *subject* the *predicate* and the *Copula* are not expressed, but some of them implied, as, *I walk*. And may be resolved by turning the verb into a participle and using some person of this verb [*I am*] and thus this *implicite* proposition, *I walk*, is turned into this, *I am walking*; in which all the parts of a proposition are expressed.

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we add some modification to shew how the predicate is in the subject. (but of these afterwards.)

2. A Hypothetical which doth consist of two Categorical propositions joyned together by some conjunction; as, if a man be a living creature, then a man is a body.

Secondly. A proposition may be distinguished in respect of its quality; and so first, it is affirmative or negative, and again it is in respect of quality, true or false; but if it be askt of what quality a proposition is? it must be answered, that it is either affirmative or negative. An affirmative proposition is that in which the predicate is affirmed of the subject.

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The material quality is that by which it is sayd to be either true or false.

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And because the matter of a proposition may be sometimes necessarily true, sometimes manifestly false, and sometimes neither plain-

ly true nor altogether false, the *quality* of a *proposition* in respect of the *matter* about which it is made, is *threefold*.

1. *Necessary*, when the *predicate* doth so agree with the *subject* from the nature of the thing, as that it cannot possibly be otherwise; as in this proposition, *man is a living creature*.

2. *Impossible*, when the *predicate* is so repugnant to the nature of the *subject*, as that it cannot be as it is affirmed; as in this proposition, *a man is a stone*.

3. *Contingent*, when the *predicate* hath such an indifferent relation to the *subject* that naturally it doth neither agree with it, nor yet is repugnant to it; as in this proposition, *a man is learned*.

In *necessary matter*, *affirmative propositions* are always true, *negative false*; as, *a man is a living creature*, is true; *a man is not a living creature*, is false.

In *impossible matter*, *affirmative propositions* are always false, *negative true*, as, *a man is a stone*, is false; *a man is not a stone*, is true.

In *contingent matter*, *propositions* whether *affirmative* or *negative*, are neither always true nor always false; for either of them both may be true or false; as, *a man is learned*; *a man is not learned*.

Thirdly

Thirdly, a proposition may be divided in respect of its quantity, into an universal, particular, indefinite and singular.

An universal proposition is that, which hath a note of universality added to a common or an universal subject; as, every man is a living creature.

A particular proposition is that, in which a note of particularity is added to an universal subject; as, some man is a living creature.

An indefinite proposition is that, in which no note whether universal or particular is put before the universal subject; as, a man is learned.

A singular proposition is that in which the subject is singular, whether it be a proper name, as Socrates is a Philosopher; or, whether it be a common name with a note of singularity set before it, as, this man is learned.

For the better understanding of that which hath been said we must observe.

1. That a note is not a part of a proposition but the sign of quantity in some proposition.

2. That some notes are universal; 1. Affirmative; as, every one, always, whensoever. 2. negative; as, none, no body, never. Some particular; 1. Affirmative; as, certain man, some body, sometimes. 2. negative; as, not every

one. *Some singular*, as all pronouns Demonstratives which design some certain; as, *this, he*, and this word *all*, when it is taken collectively not distributively, as, *all the fingers are five*.

3. That an *indefinite proposition* in *necessary matter* is equal to an *universal*; in *contingent matter* it is equal to a *particular*: And the *matter* of a proposition is then said to be *necessary*, when the *subject* cannot be without the *predicate*, and then it is sayd to be *contingent*, when the *subject* may be without the *predicate*; as in this proposition, *a man is learned*; the *matter* is *contingent*; but in this, *a man is a living creature*, the *matter* is *necessary*; for he cannot be a *man* except he be a *living creature*.

According to this threefold division there ariseth a threefold question concerning a *proposition*.

What proposition is it? To which it must be answered, *Categorical* or *Hypothetical*.

2. *Of what quality is the proposition?* To which it must be answered, *Affirmative*, or *Negative*.

3. *Of what quantity is the proposition?* To which it must be answered, *Universal*, *Particular*, *Indefinite* or *Singular*.

C H A P. XIX.

Of the Opposition of Categorical Propositions.

Pure categorical propositions, as they have reference to one another, have these three affections.

1. *Opposition.* 2. *Equipollency.* 3. *Conversion.*

Opposition is the repugnancy of two Categorical propositions either in quantity alone, or in quality alone, or else in quantity and quality, in which there is the same subject, the same predicate, and the same copula; as in these, every man is just: no man is just.

Hence it is apparent that these five conditions are required that any proposition may be said to be opposite.

1. That they be two different propositions; and therefore these are not opposite, a man is a living creature, a man is a living creature; for these are not two but one, not differing or repugnant, but the same.

2. That they be different either in quantity or in quality or in both these; therefore these are not

not opposite; *some man is learned*; *not every man is learned*; for they differ only in their words but not in quality nor in quantity.

3. That both propositions have the same subject and the same predicate; therefore these propositions are not opposite. *A man is white*; *a man is black*; for though these simple terms *white* and *black*, are in themselves opposite in sense and reality of the thing; yet they are not opposite in respect of the form of opposition, which is required in propositions, because they have not both the same predicate.

4. That both propositions be *ad idem*, or to the same thing; these propositions therefore are not opposite. *A Blackmore is white*, viz, in respect of his teeth. *A Blackmore is not white*, viz, in respect of his body.

5. That they be opposite in respect of the same time; otherways they are not opposite; as *S. Paul was at Rome*, and *S. Paul was not at Rome*. In reference to distinct times both propositions may be true:

These conditions being observed there are four ways by which two propositions may be said to be opposite to one another, Contrarily, Subcontrarily, Contradictorily, Subalternally,

Two propositions that are Contrarily and Subcontrarily opposite are opposite only in quality; and such as are subalternately opposite, are

are *opposite* only in *quantity*. And such as are *contradictorily opposite*, are *opposite* both in *quantity* and *quality*.

Opposition by way of *contrariety* is the repugnancy of two *universal propositions* in *quality*; as, *every man doth run, no man doth run*. And these in a *contingent matter* may be together both false, but cannot be both together true.

Opposition subcontrarily is the repugnancy of two *particular propositions* in *quality*; as, *some man doth run, some man doth not run*; and these in a *contingent matter* may be both together true, but cannot be both together false.

Subalternate Opposition is the repugnancy of 2 *affirmative* or 2 *negative propositions* in their *quantity*; as, *every man doth run; some man doth run; some man doth not run, no man doth run*.

Contradictory opposition is the repugnancy of two *propositions* both in *quality* and in *quantity*; so as that if one of them be *affirmative* the other shall be *negative*; if one be *universal* the other shall be *particular*; as, *every man is learned, some man is not learned*.

Hence it is apparent. 1. That every proposition is opposite to some proposition or other. 2. That every proposition which is opposite to another, is opposite, either by way of *contrariety*, *subcontrariety*,

subcontrariety, subalternation, or contradiction; all which may be easily apprehended from the following Schem.

Every man is learned.

No man is learned.

Contrariety



Subcontrariety.

Some man is learned. Some man is not learned.

And thus it hath been shewed what opposition is, and how many ways one proposition may be opposite to another; come we now to the rules to be observed in such propositions as are any way opposite.

1. Such propositions as are opposite by way of contradiction, have these four Rules or Canons.

1. Contradictory

1. *Contradictory propositions* are the greatest, because they are repugnant both to *quantity* and *quality*.

2. *Contradictory propositions* can never be both true, or both false, if but one be true the other must be false; as, *every man is just*, *some man is not just*.

3. Every *proposition* of what *quantity* or *quality* soever it be, it is *opposite* unto one, and but to one, by way of *contradiction*.

4. In every *legitimate* disputation, a *contradictory proposition* is always concluded by the *Thesis* of the respondent.

And here observe that *contradictory propositions* are of *two* sorts, viz. 1. Either such as have a *common subject*; and such are those of which we have hitherto spoken; or, 2. such as have a *singular subject*, and which are *two singular propositions*, having the *same subject* and the *same predicate*, but one *affirmative*, and the other *negative*: as, *Socrates is learned*, *Socrates is not learned*,

2. The *laws* of such *propositions* as are *opposite* by way of *subalternation*, are *two*.

1. If the *universal* or *subalternating proposition* be true, then the *particular* or *subalternated proposition* is also true, and the *contrary*; as, if this be true, *every man is learned*, this is also true, *some man is learned*.

2. If

2. If the *particular* or *subalternated* proposition be false, the *universal* or *subalternating* proposition is also false, but not the contrary; as if this be false, *some man is learned*; this shall be also false, *every man is learned*.

3. Propositions which are *opposite* by way of *contrariety* have this only rule, that they can never be both together true, but they may be both together false, viz; in a *matter* that is *contingent*; as these are both false, *every man is learned*, *no man is learned*.

4. Propositions that are *opposite* by way of *subcontrariety* have one rule, namely this, that they may be both together true, but cannot be both together false; as these be true, *Some man is learned*, *Some man is not learned*.

And thus much concerning *opposition* or the *first affection* of *Categorical propositions*.

CHAP. XX.

Of the Equipollency of Categorical Propositions.

Equipollency is the equivalency of two propositions in sense and signification, though they differ in words, by virtue of this word of negation, [not] being either set before the sign and subject, after the sign, and subject, or, both before and after, in which there is the same subject and the same predicate; as, *some man is learned, not every man is learned*; whence it is apparent that to a true equipollency these conditions are required.

1. That they be two propositions.
2. That these two propositions have the same sense, so as that both of them be affirmative, or both negative, both true or both false, and both of the same quantity.
3. That they differ in words though not in sense.
4. That they be made equivalent by virtue of this word of negation, [not] so that these propositions, *a man is learned, a man is knowing*, are materially equivalent, viz. equivalent in the sense, but not formally, and as
we

we understand *equivalency* in this place.

5. That this word of negation [*not*] be either set *before* the sign and the subject, or *after* the sign and the subject, or both *before* and *after*.

6. That both have the *same* subject and the *same* predicate.

Cateorical propositions are as many several waies made *equipollent* as this word of negation [*not*] may be severally placed; and that is *three*; for this word of negation [*not*] may be set,

1. Only *before* the sign and subject, and then it makes two *contradictory propositions* to be *equivalent*; as, *not every man is learned, some man is learned*

2. Only *after* the subject and sign of quantity, and then it makes two *contrary propositions* to be *equivalent*; as, *no man is not learned, every man is learned*; this holds if the first be *negative*.

3. Both *before* and *after* the sign and subject, and then it maketh two *subalternate propositions* to be equal; as, *not every man is not learned, some man is learned*; all which are fully expressed in these Distichs.

If *after* sign and subject this [*not*] be,
Contraries then, make *Equipollencie*.

If

Only before make contradictories,
But 'fore and aft' are subalternants guise.

CHAP. XXI.

Of the Conversion of Propositions.

CONVERSION is an apt mutation of the whole subject, into the place of the whole predicate, and of the whole predicate into the place of the whole subject, keeping the same quality, but sometimes changing the quantities; as, every man is a living creature, some living creature is a man.

In conversion we are to consider the proposition to be converted, which is that, whose terms are to be transposed, and this is the first; as every man is a living creature.

Then we are to consider the proposition converting, into which the other is to be converted, and this is the latter; as some living creature is a man.

This conversion is three-fold.

I. *Simple*, in which the predicate is changed into the place of the whole subject, and the contrary, keeping the same both quality and quantity; as no man is a stone, therefore

no stone is a man. In this conversion an universal negative, is turned into an universal negative, and a particular affirmative into a particular affirmative.

2. By accident, in which the whole predicate is changed into the place of the whole subject, and the contrary, keeping the same quality but changing of the quantity; as, every man is a living creature, therefore some living creature is a man.

In this conversion an universal affirmative is turned into a particular affirmative, an universal negative into a particular negative.

3. By contraposition, in which the whole subject is changed into the place of the whole predicate, and the contrary, keeping both the same quality and quantity, but the finite terms are made infinite; as, every man is a living creature, therefore every thing that is not a living creature, is not a man. In this conversion an universal affirmative is turned into an universal affirmative, and a particular negative into a particular negative; but this is the most useless, and indeed no conversion, because the terms are changed, which in a true conversion, is not to be admitted.

But that this concerning the terms may be made more clear; we must observe, that these terms are said to be. Finite, before which
this

this word of negation [*not*] is not set; as, *a man*, Infinite before which this word of negation [*not*] is set; as, *not a man*, *not a stone*, *not learned*.

The Rules for conversion are four.

1. If the proposition to be converted be true, in a legitimate conversion, the proposition converting is also true, and the contrary; as if this be true, *every man is a living creature*, this is also true, *some living creature is a man*; but not on the contrary: for this is not true, *every man is learned*, and yet this is true, *some man is learned*.

2. Every proposition cannot be converted every way, but every proposition may be converted some way; this proposition therefore cannot be converted by simple conversion; *every man is a living creature*; for then the proposition converting should be false: that therefore it may be known, what propositions may be converted this, or that way, these verses are to be considered.

E. E. I. I. conversion simple make.

A. I. E. O. of accident partake,

A. A. O. O. for Contrapositions sake.

In which the four letters A. E. I. O. are thus to be understood. A. signifies universal affirmative. E. universal negative. I. particular affirmative;

firmative; and *O. particular negative*: according to these Distichs.

A. affirms, E. denies, both *universal* are;
I. affirms, O. denies, but both *particular*.

The first verses shew, that E. is to be converted into E. and I. into I. by simple conversion; that an *universal negative* into an *universal negative* &c. so likewise A. into I. and E. into O. to be converted by accident and lastly A. into A. and O. into O. by *contraposition*.

3. That the whole predicate be changed into the place of the whole subject, and the contrary.

4. That we beware, that imperfect terms be not taken for such as are intire. This proposition therefore; a certain tree is in the field, is not thus converted, therefore a certain field is in the tree; but thus, therefore a certain thing in the field is a tree. Some man doth see one that is blind, is not thus to be converted, therefore some one that is blind doth see a man, but thus, therefore some thing seeing one that is blind is a man. Every old man was a boy, is not thus to be converted, therefore a certain boy was an old man, but thus

thus, therefore a certain person which was a boy is an old man.

And thus much concerning the affections of pure Categorical propositions.

CHAP. XXII.

Of Modal Propositions.

Hitherto we have spoken of such Categorical propositions, as are pure, and without modes; it remaineth now that we speak something of such categorical propositions as are called *modal*, the which are thus defined.

A modal proposition is (as we defined it above) that in which, besides the subject, predicate and Copula, we add some modification to shew how the predicate is in the subject; as in this proposition: it is impossible that a man should be without reason.

The division of *modal propositions* is taken from the diversity of the *modes*, which respect either the *matter* or the *form* of the *proposition*.

Such *modes* which respect the *matter*, that is, the *subject* and the *predicate* without connexion

nexion, are *twofold*,

1. Such in which the *mode* affects the *subject* only, as he which doth *easily* learn is *ingenious*; where *facility* is the qualification of the learner.

2. Such in which the *mode* affects the *predicate* only, which doth more frequently happen.

And this is *twofold*,

1. That which respects the *time* signified; as, *Peter was here a long while*.

2. That which respects the *thing* signified; as, *a horse runneth swiftly*, of which sort are these, *it is a holy thing*, *it is eight*, *it is sweet*, &c. which if they be resolved into nouns, do make the *predicate* it self; as, *to worship God is a holy thing*, that is, *to worship God is piety*; and in this manner the rest may be resolved.

Secondly, other *modes* respect the *form* or the connexion of the *terms*, to which especially the definition of a *modal proposition* doth agree, and is *two-fold*.

1. *Principal*, in which the *moods* are affected with some *primary* manner, such as are these four:

1. *Necessary*, and is defined to be that, which is and cannot be otherwise; as, *a man must needs be a living creature*; and hath the
for ce

force of an *universal affirmative*.

2. *Contingent*, and is defined to be that which is and may be otherwise, or may not be, as, *perchance it may rain to morrow*; and hath the force of a *particular affirmative*.

3. *Impossible*, which is defined to be that which neither is, nor can be, as it is impossible that a man should be a beast; and hath the force of an *universal negative*.

4. *Possible*, which is defined to be that which is not, but may be; as it is possible that roses may flourish again, and hath the force of a *particular negative*.

2. *Less principal*, in which the modes are affected in a *secondary manner*, and may be reduced to the four first.

1. *Probable*, and may be reduced unto *Contingent*.

2. *True*, and is referred to *necessary*.

3. *Easie*, and is contained under *possible*.

4. *Difficult*, and is included in *impossible*.

That this may be the better conceived, five things must be considered.

1. That the *modification* of a *proposition* doth consist in two things.

1. The *saying*, which is the *whole Categorical proposition*, which supplies the place of the *subject* only; as, *it is possible that water may be warm*.

E

2. The

2. The manner, which supplies the place of the *predicate*, in what part of the *propoposition* soever it be set.

2. In every *modal proposition* the *manner* of the *modification* is the *most principal*, and doth the office of the *copula*.

3. No other *modes* or *manners* but the *formal* are in *Logick* to be regarded; that is, such as respect the connexion of the *terms*.

4. The four *modes* respect the four *differences* that are in things.

Now things may be said,

1. *Always to be*; with which agreeth this, *necessary to be*.

2. *Never to be*; with which agreeth this, *it is impossible to be*; and this, *never to be actually*, as, an *Infinite number*; or, *never to be either actually or potentially*, as, an *irrational man*.

3. *Sometimes not to be, but also may be*; and with these agreeth this, *it is possible to be*.

4. *Sometimes to be, but also may not be*; and with these agreeth this, *it is contingent*.

5. That the four *modes* may be distinguished, two things are required.

1. That they respect the *same time*, otherwise the *same thing* may be both *possible* and *impossible*; as, *It is impossible for one that sits to run* [that is *while he sitteth*]; but if it be referred unto *another time*, it is *possible*.

2. That

2. That they be referred to the *same* subject; as, *whilst I see Socrates running, Socrates of necessity must run.* But if it be referred to the *liberty* of Socrates, then it is *contingent*, for he *may* and he *may not run.*

The *quantity* of *modal propositions* as it hath reference unto the [*dictum*] or [*saying*] is altogether the same with *pure Categorical*, and is the *material quantity*; but as it hath reference to the *mode*, that is *universal* which hath an *universal mode*, as *necessary* or *Impossible.*

That is *particular*, which hath a *particular mode*, as *possible* or *contingent*, and this is the *formal quantity*; as, *it is impossible that any man should be a stone*; the which is *particular* in reference to the [*dictum*] or [*saying*], and *universal* in respect of the *mode.*

In like manner the *quality* of *modal propositions*, as it hath reference to the *saying*, is the same with *pure Categorical*; and as it hath reference to the *mode*, that *affirmeth* which hath an *affirmative mode*, viz. *necessary* or *contingent*; and that *denies*, which hath a *negative mode*, viz. *possible* or *impossible.* But if respect be had to the *whole modal proposition*, that is *negative* in which the *mode* is *formally denied*, and that *affirmative* in which 'tis *not denied*; as this, *It is impossible that a*

man should not be a living creature, is negative in respect of the saying, and negative in respect of the mode, but in respect of the whole proposition it is affirmative.

Every true modal proposition is necessary, every false, impossible; and between these there is no mean.

In the necessary mode, that proposition is true, whose matter is necessary; false, whose matter is impossible, or contingent.

In the impossible mode that proposition is true, whose matter is impossible, and that is false, whose matter is necessary or contingent.

In the contingent mode, that proposition is true, whose matter is contingent, and that is false, whose matter is necessary or impossible.

In the possible mode that proposition is true, whose matter is necessary or contingent, and that is false, whose matter is impossible,

The Opposition and Aequipollency of modal propositions, Logicians have expressed by these fictitious words, *Purpurea*, *Iliace*, *Amabimus*, *Edentuli*; The four syllables of every of these words do signifie the four modes, the first syllable in every word doth signifie the possible mode; the second syllable, the contingent mode; the third syllable the Impossible mode, and the fourth syllable the necessary mode.

As for the four vowels which are in these words

words, A. notes that the *dictum* and the *mode* are both affirmative V. notes that they are both negative; E. notes that the *mode* is affirmative and the *dictum* negative; I. noteth that the *mode* is negative, and the *dictum* or saying affirmative, according to these verses.

V, both denies. A, both affirms: but I,
Destroys the mode; E, dictum doth deny.

Which being premised the whole matter may be easily understood by the following Scheme.

Pur not possible not.	not possible.	I
Pu not contingent not.	not contingent	li
re impossible not.	impossible.	a
a necessary.	necessary not.	ce.
A possible.	possible not.	E
ma contingent.	contingent not.	den
di not impossible.	not impossible not.	tu
mus not necessary not.	not necessary.	li

In which scheme those are *equipollent*, which are contained in any one word, but those at the bottom, top sides and opposite Angles, are in the same manner opposed, as hath been shewed concerning the opposition of pure Categorical propositions; therefore, *Purpurei*, and *Iliace*, are contraries; *Amabimus*, and *Edentuli* are subcontraries. *Purpurea* and *Edentuli* are contradictories; and so are *Iliace*

and *Amabimus*; *Purpurea* and *Amabimus* are *subalterns*, and so are *Iliace* and *Edentuli*.

As for the *conversion* of *modal propositions* I willingly pass them by, as being unwilling to give my Reader the trouble of that, which will not requite his pains.

To these *modal propositions* those may be reduced, which are called *exclusive*, *exceptive*, and *reduplicative*,

An *exclusive proposition* is that in which an *exclusive particle* is found, as, *only*, *alone*, and the like; as, *man only is rational*.

And it is *exclusive* either of the *predicate* or the *subject*. *Exclusive of the predicate* is that, which by a *sign of exclusion* put between the *subject* and the *predicate* doth exclude other *predicates* from the same *subject*; as, the *Elements* are *only four*; and this is called a *proposition excluding the extrem*.

Exclusive of the subject is that, which with an *exclusive particle* set before it, excludes or shuts out other *subjects* from participation with the same *predicate*; as, *only man is rational*: and this is absolutely called an *exclusive proposition*.

A *Proposition excluding the extrem* is expounded by taking away the *sign* and removing from the *predicate* any other *number* or *thing*, as the case shall require; as this, *the elements are only four*, is thus expounded, *the elements are four and no more*.

A *proposition exclusive of the subject*, though it may be otherwise expounded, yet is it more simply done by the *universal affirmative* of the transposed terms; as this, *a man only is rational*, is thus expounded, *everything that is rational is a man*, and so of the rest; *mutatis mutandis*.

An *Exceptive proposition* is that in which there is an *exceptive particle*; as, *except, besides, unless, and such like*; as, *every living creature besides a man is irrational*.

In every legitimate exception, the term *excepting* must be of a larger comprehension than the term *excepted*, that it may be distributed.

This is expounded by two exponents, the first of which ought to be of the same quantity and quality, with the *exceptive in the subject* & the *excluded term*; and the other of divers quantity and quality, in which the *subject* is the *excepted term*, and the *predicate* the same with the *exceptive*; as, *every living creature besides a man is irrational*, is expounded by these, *every living creature, which is another from a man is irrational*; And, *some man is not irrational*, and thus may any other be expounded.

A *Reduplicative proposition* is that, in which there is found some *reduplicative particle*; as, *according to, in respect of, as far forth as, and*

Such like ; as, *man is rational*, and this is called, a *Restrictive* or a *limitative proposition*.

Reduplication is twofold.

1. *Uniform*, which is also called *simple* or *specific*, when the *reduplication* is by the *same* name ; as, in this, *man as man is rational* : and this *reduplication* is not used, but in an *essential predication*, where the *predicate* so agreeth with the *subject*, as if it were the very *subject* it self.

2. *Not uniform*, or *compounded*, when the *reduplication* is made by *divers* names, whether it be of the *Genus*, and so is called *Generical* ; as in this, *a man, as he is a living creature, is sensible* ; or of the *part*, and is called *partial* or *Synechdochical*, as in this, *a man in respect of his soul is immortal* ; or of the *Accident*, and is called *Accidental* ; as, *Socrates, as he is a Philosopher, doth dispute*.

A *reduplicative proposition* is expounded by four exponents ; the first of which exponents, doth attribute the *principal predicate* to the *subject*. The *Second* doth attribute the *reduplicative predicate* to the *subject*. The *third* doth attribute the *principal predicate* to the *subject*, by way of *universality*. The *fourth* is a *causal* - inferring the *principal predicate* from the *reduplicative* ; as this, *a man, as he is a living creature, is sensible*, may be expounded

pounded by these several exponents thus.

1. *A man is sensible; and a man is a living creature, and, every living creature is sensible.* And, because *something is a living creature,* that *something is sensible.* In like manner may all other reduplicative propositions be expounded, whether negative or affirmative.

But the whole matter may be more readily done, and no less commodiously, if it be expounded by a simple exposition by the help of one causal only; thus the former proposition, *a man as he is a living creature,* may be thus expounded; *because a man is a living creature, therefore he is sensible.*

C H A P. XXIII.

Of Hypothetical propositions.

Hitherto we have spoken of *Categorical propositions*, come we now to *Hypothetical*.

An *Hypothetical proposition* is that, which doth consist of two *Categorical propositions* joyned together by some conjunction; as, *man is a living creature; and, a man is learned.*

Hypothetical propositions are of three sorts, conditional

ditional, Copulative, and Disjunctive.

1. *A conditional or Hypothetical proposition* strictly taken, in which several categorical propositions are joyned together by a conjunction conditional; as, *if it be day, then the Sun doth shine*; to this may that which is called a *causal proposition*, be reduced; such as is this, *because the Sun doth shine it is day*; and also this, *the Sun doth shine, therefore it is day*, and note that the first Categorical proposition is called the *antecedent*, and the second is called the *consequent*, because it followeth from the former.

2. *Copulative*, in which several Categorical propositions are joyned together by a Conjunction copulative; as, *a man is rational, and, a beast is irrational*. To these, those propositions are referred, which are called *adversative*; as, *Socrates, though he is not an Orator, yet he is a Philosopher*; and *comparative*; as, *Socrates is as learned as Plato*; and *significative of Place*, as, *where Socrates doth read, Plato doth dispute*; and *significative of time*; as, *while Socrates doth read, Plato doth dispute*.

3. *Disjunctive*, in which several propositions Categorical are joyned together by a conjunction disjunctive; as, *either it is day, or it is night*.

A conditional proposition is,

1. True

1. *True*, when the *Antecedent* doth prove the *consequent*; as, if it be granted, that it is day, it followeth, that the sun doth shine; therefore the *antecedent* being granted, the *consequent* must of necessity be granted also.

2. *False*, when the *antecedent* doth not prove the *consequent*; but the *antecedent* being granted, the *consequent* doth not necessarily follow; as, granting that a man is a living creature, it doth not follow, that he is learned: this conditional proposition is therefore false, if a man be a living creature, then he is learned.

A *Copulative* proposition is,

1. *True*, when both parts thereof are true: as this is true, a man is a living creature, and a man is rational, for both the parts thereof are true.

2. *False*, when either one or both the parts are false; as this is false, a man is a living creature, and irrational, for the latter part is false, namely this, a man is irrational.

A *disjunctive* proposition is,

1. *True*, when one or both of the parts are true, as this is true, either it is day, or it is night; for one of the parts is true, though the other be false.

2. *False*, when both parts are false; as this is false, A man is either a tree or a stone, for neither of them is true.

Hypothetic.

Hypothetical propositions have not properly either *quantity* or *quality*, but what they have from their *Categoricals*; neither have they such *oppositions* and *Aquipollencies* which *Categorical propositions* have: they are capable but of one only kind of *opposition*, and that is *Contradictory*; and this is made by putting the *particle of negation*, in the first part of the *Hypothetical proposition*; and therefore this, if *Socrates doth run, he is a living creature*, is *contradictory* unto this, if *Socrates doth not run, he is a living creature*. And thus it is also both in *Copulative*, and in *disjunctive propositions*.

The



The Second Book

OF THE

ART of LOGICK.

CHAP. I.

Of Definition.



AVING done with the first part of Logick, namely that which treateth of *Theams* both simple and compound, with their various *affections*: come we now to the second, called the *Organical*, or that which treateth of *Logical instruments*, and their composition.

21. *Logical Instruments* are these four,
Definition,

Definition, Division, Syllogism and Method.

3. Definition is the explication of the thing which is defined; and this is either nominal or real.

4. A Nominal Definition is that which sheweth the signification of the name; whether it be by giving the Etymology thereof; or by expressing it by some other Synonymous word more generally known.

5. A real Definition is that which sheweth what the thing is: and this is twofold, perfect imperfect.

6. A real & a perfect Definition is that which doth explain the thing by essential attributes; whether they be such as constitute the thing; and then it is a Definition of the substantial form, which doth most exactly explain the nature of its species; as, a man is a rational living creature: Or such as do partly constitute the thing, and partly produce the same necessarily; and then it is a Definition of the accidents, and this is threefold.

1. Formal, which consists of the Genus, and the subject of the accident; for the subject of the accident is as it were the form, as, Thunder is a noise in the clouds.

2. Causal, which doth demonstrate the nature of the thing defined, and it is the next cause of the accident, either efficient or final.

3. Both

3. Both *formal* and *causal*, which sheweth the *Genus*, *subject*, and *cause* of the thing defined; as if an *Eclipse* of the *Moon* be thus defined, it is a *privation of light in the Moon, by the interposition of the earth*. The *Genus* is *privation*, the *difference* or *form* is the *subject*, viz. the *Moon*; and the *efficient cause* is the *interposition of the earth*.

7. A *real* but *imperfect* definition, otherwise called a *description*, is that, which explains the nature of the thing, by certain *accidental attributes*; it doth consist of a *Genus* or something which doth supply the place of a *Genus*, and of *proper* and *common accidents*, which supply the place of the *difference*; as, *a man is a living creature that is risible, hath two feet*.

And because our knowledge begins from the *accidents*, therefore this kind of description is most in use with all.

The *Canons* or *Rules* are;

1. In every science, you are to begin with the definition of the name thereof.

2. A description may be suitable as well to the *substantial*, as the *accidental* part of any thing.

3. A *Species* only is defined by a *formal* definition.

4. An *accident* only is defined by a *causal*.

sal definition, or by a formal and a causal both.

5. A definition consisting of the form and cause both, doth differ from a Demonstration in the disposition of the terms only.

6. Every descriptive definition, whether formal, or formal and causal both, is an oration.

CHAP. II.

Of Division.

Division is the resolving of the whole into parts.

And this is either of some ambiguous word into its several significations: or of the whole into its parts.

2. Now the whole, is either simple or aggregate.

3. Division of the whole, simply and properly so called, is threefold.

1. Universal into its subjective parts, or of the General into the specials; as to divide animal into man and beast.

2. Essential, which resolves the whole into essential parts, and this is either of a species into

to its Genus and difference, or of some specific nature into its matter and form; as, a man into soul and body.

3. Integral; which resolveth the whole into integral parts, and this is the division of some individual, either into its sensible or material parts.

4. Division of the aggregated whole into its parts, and by accident is four fold.

1. When the subject may be divided by its accidents; as, men are learned or unlearned.

2. When an accident may be divided by its subjects; as, Feavers are in the spirits, or in the humours, or in the solid parts.

3. When an accident may be divided by accidents; as, good is either profitable, honest or pleasant.

5. When things may be divided by their subjects; as, sight by colours, hearing by sound.

6. When causes may be divided by their effects, and the contrary; as, Heavenly heat is from the Sun, and Elementary from fire.

The Canons or Rules are these.

1. An ambiguous word must be explained before it can define any thing.

2. Unless the ambiguity be explained in the beginning

beginning, the error will be afterward the greater.

3. In the simple dividing of the whole, the members dividing should be equal to, and agree with the whole.

4. The members dividing should be disjoint from one another.

5. Division doth consist of as few members, or parts as the nature of the whole will bear.

6. In any Division the whole must be of a larger extent than any one of the parts.

C H A P. III.

Of a Syllogism.

A Syllogism is an oration in which some things being taken for granted, something else not granted before is proved or inferred from them: and this is twofold, perfect or imperfect.

2. A perfect Syllogism is an argumentation, in which from two premises disposed rightly, and according to rule, some conclusion doth necessarily follow; as, every man is an animal, every thing that hath reason is a man, therefore every rational thing is an animal.

3. A perfect Syllogism is twofold, Categorical and Hypothetical.

4. A Categorical Syllogism is that in which all the propositions are categorical; and this is also twofold, Common and Expository.

5. A common categorical Syllogism is that in which the Medium is a common name; every sound may be heard, every voice is a sound, therefore every voice may be heard.

6. An Expository Categorical Syllogism is that in which the Medium is a singular name; as, Sorates is learned, Sorates is an Athenian, therefore some Athenian is learned.

7. An Hypothetical Syllogism is that in which one or more of the propositions are Hypothetical; as, if Sorates be a man, he is an animal; but Sorates is a man, therefore he is an animal.

8. To make a common Categorical Syllogism two things are required, matter and form.

9. The matter of a Syllogism is either remote or next.

10. The remote matter of a Syllogism is that matter of which it is remotely made, as the three terms in every proposition, called the major extreme, the minor extreme, and the

the *middle term* or *argument*.

11. The *major extreme*, is that which is in the *major proposition*, and in the *conclusion*, but never in the *minor*.

12. The *minor extreme*, is that which is in the *minor proposition*, and in the *conclusion*, but never in the *major*.

13. The *middle term* or *argument*, is that which is in the *major* and *minor propositions*, but never in the *conclusion*.

14. The *next* or *immediate matter* of a *Syllogism*, is that of which the *Syllogism* is immediately made; as, the *three propositions*, of which the *first* is called the *major*, the *second* the *minor*, and the *third* the *conclusion*.

15. The *form* of a *Syllogism*, is the right disposing of the matter both *next* and *remote*; and this comprehendeth two things, *figure* and *mode*.

16. A *figure* is that which shews how the *middle term* may be fitly placed; which may be done *three waies*, or by *three figures*.

17. The *first figure* maketh that which is the *subject* in the *major proposition* to be the *predicate* in the *minor*.

18. The *Second figure* maketh that which is the *predicate* in the *major proposition*

be the *predicate* in the *minor* also.

19. The *third figure* maketh that which is the *subject* in the *major* proposition to be the *subject* in the *minor* also, according to these disticks.

Both *sub* and *præ* doth the first figure use,
Twice *præ* the next, the third twice *sub* I
muse.

20. A Mood is the disposing of the propositions according to quantity and quality.

21. There are nineteen Moods, of which some are perfect, some imperfect. In the first figure there are nine, Barbara, Celarent, Darii, Ferio; and these four are perfect: Barapton, Celantes, Dabitis, Fapesmo, Fricesmorum; and these five are imperfect. In the second figure there are four Moods, Cesare, Camestres, Festino, Baroco; and in the third figure there are these six, Darapti, Felapton, Disamis, Datisi, Bocardo, Ferison: the Moods in both these figures are all perfect, and are so many words of art, which serve only to denote the quality and quantity of every proposition, by help of the vowels which are in them; A. E. I. and O. And how the quantity and quality of a proposition may be known by these vowels hath been shewed before.

22. And these directions are sufficient for the placing of the middle terms, and the right

right disposing of the two first propositions in a *sylogism* called the *premisses*; the third proposition or *conclusion* may be inferred from them by help of these *moods* two ways, to wit, *directly* or *indirectly*.

1. *Directly*, when the *minor extrem* or *term* is the *subject* in the *conclusion*; and the *major term* the *predicate*; and thus the *conclusion* is inferred in *four moods* of the *first figure* and in all the *moods* of the *second* and the *third figures*.

2. *Indirectly*, when the *Major extrem* is the *subject* in the *conclusion*, and the *Minor* the *predicate*; and this is in the *five last modes* of the *first figure* only, according to these *verses*.

All the *nineteen* directly do conclude,
Except of *figure first*, the *last five moods*.

The *Canons* or *Rules* concerning the *matter* and *form* of a *common Sylogism*.

1. From *true premisses* rightly disposed a *true conclusion* is rightly inferred.

2. A *Sylogism* consisting of *pure negatives*, or *pure particulars* in the *premisses*, no *universal conclusion* can be rightly inferred.

3. The *conclusion* is always inferred from the *more unworthy* or *weaker parts*: and an *affirmative*

affirmative is always more worthy than a negative,
and an universal than a particular.

4. In every Syllogism there must be three terms
and no more; and four terms may be either ex-
pressed or implied in using a doubtful word;
for every doubtful word is a double word.

5. Every Syllogism either is in the first figure,
or may be reduced thereto.

Examples of the universal moods, in which
the conclusion is directly inferred in the first
figure.

Bar Every animal is sensible.
ba Every man is an animal,
ra Therefore every man is sensible.

Ce No animal is a stone,
la Every man is an animal,
rent Therefore no man is a stone.

Da Every colour is visible,
ri Some quality is a colour,
i Therefore some quality is visible.

Fe No vice is placed in the middle,
ri Some habit is a vice,
n the Therefore some habit is not placed in the
affir middle.

Examples

Examples in the second figure.

Ce No rich man is poor,
 fa Every covetous man is poor,
 re Therefore no covetous man is rich.

Ca Every animal is mortal,
 mel No Angel is mortal,
 tres Therefore no Angel is an animal.

Fef No animal is a plant,
 ti Something that hath life is a plant,
 no Therefore something that hath life is not
 an animal.

Ba Every man is an Animal,
 ro Something that hath life is not an ani-
 mal,
 co Therefore something, that hath life is
 not a man.

Examples in the third figure.

Di Every vertue is difficult,
 rap Every vertue is honest,
 ti Therefore something, that is honest, is
 difficult.

Fe No stone doth live,

lap
ton

Every stone doth naturally descend,
Therefore something which doth natural-
ly descend, doth not live.

Di
fa
mis

Some man is a thief,
Every man is a rational creature,
Therefore some rational creature is a
thief.

Da
ti
fi

Every man is a living creature,
Some man is wise,
Therefore some body that is wise is a li-
ving creature.

Bo
car
do

Some Animal is not rational,
Every animal is mortal,
Therefore some mortal is not rational.

Fe
ri
fon

No severity is pleasing,
Some severity is good,
Therefore, something that is good, is not
pleasing.

C H A P. IV.

Of the Reduction of Syllogisms.

SOME *Syllogisms* which do naturally and evidently conclude are *perfect* and need no *Reduction*, such are those that are made according to the *four first moods* of the *first figure*, but all the rest are *imperfect*, and are to be reduced to these *four*; and the *third* proposition or *conclusion* in these *Syllogisms* formed according to these *four moods*, doth depend upon *two rules*; the *one* is called *Dictum de omni*, spoken of all; the other *Dictum de nullo*, spoken of none.

2. A thing is then said to be *spoken of all*, when that which is universally affirmed of the *predicate* is also affirmed of all his *subject*, and upon this *rule* are these *two moods*, *Barbara* and *Darii*, founded.

3. A thing is then said to be *spoken of none* when that which is universally denied of the *predicate* is also denied of all the *subject*, and upon this *rule* are these *two moods*, *Celarent* and *Ferio* founded. Hence it appears why all the other *moods* are to be reduced to these *four*, because the *conclusion* is naturally

naturally inferred in them, and because they are founded upon these rules.

4. And, *Reduction* is the declaration, or manifestation, how the conclusion in any imperfect mood, is inferred from the premisses by reduction to some perfect mood, or some other part of the contradiction.

5. *Reduction* is twofold, *Direct* or *Indirect*.

1. *Direct reduction* is, when some *Syllogism* of the second or third figure is reduced to some *Syllogism* of the first, by converting one or both of the premisses, or by transposing them, or by conversion and transposition both.

2. *Indirect reduction* is, when we compel the adversary to confess some *absurd* or *Impossible* thing.

6. The manner how both these kinds of *Reduction* must be performed, will be easily understood by considering the *Consonants* in the beginning and middle of those *Moods*, which are to be reduced to the moods of the first figure.

7. The *Consonants* in the beginning of the *Moods* are these four, B. C. D. F. and shew unto which mood of the first figure, every mood of the second and third figures is to be reduced, namely to that, which doth begin with the same letter : all the imperfect *Moods*

therefore which begin with **B**, must be reduced to *Barbara*; those which begin with **C**, to *Celarent*, Those with **D**, to *Darii*, and those with **F**, to *Ferio*.

8. The *consonants* to be observed in the middle of the *Moods* are these four. **S. P. M. C.** and shew by what instrument the reduction is to be made, whether by *Conversion*, *Transposition*, or *Deduction* to some absurd or impossible thing. **S**, sheweth that that proposition in which it is found must be converted by *simple conversion*. **P**, noteth that the proposition must be converted by *accident*. **M** noteth that the premisses must be *transposed* that is, the *Minor* into the place of the *Major*, and the *Major* into the place of the *Minor*. **C**, noteth that the *Reduction* must be made by some absurd or impossible thing.

According to these disticks,

The letter **S**, *Simple conversion* notes,
But **P**, for *Accident* doth spend its votes.
The letter **M**, doth *Transposition* use,
C, notes that you th' *opponent* must abuse.

9. *Indirect reduction*, or reduction by bringing the adversary to some absurdity hath place only in these two *Moods*, *Baroco* of the second figure, and *Bocardo* of the third; and to reduce

duce these *two moods*, two things must be observed.

1. If *Baroco* be to be reduced, the *Minor* proposition must be contradictory to the *Conclusion*: if *Bocardo*, the *Major* proposition must be contradictory to the *Conclusion*.

2. If *Baroco* be to be reduced, the *Major* shall still be the same; but if *Bocardo* the *Minor*: according to these disticks.

The *Major* keep *Baroco* to reduce,
And keep the *Minor* for *Bocardo's* use.

CHAP. V.

Of an imperfect Syllogism.

AN imperfect Syllogism is a Syllogism that hath some defect, either in the number of the premisses, in the disposing them, or in the inference from them; and is fourfold; 1. *Enthymem*. 2. *Induction*. 3. *Example*. 4. *Sorites*.

1. An *Enthymem* is an imperfect Syllogism, inferring the conclusion from some one proposition only; as, a man is a living creature, therefore he hath a soul.

In which these three things are to be observed.

1. In an *Enthymem* the first proposition is called the *Antecedent*, the other the *Consequent*.

2. If the *Predicate* be in the *Antecedent* and *conclusion*, the *Minor* is wanting; If the *subject* be in the *antecedent* and *conclusion* the *Major* is wanting.

3. An *Enthymem* is a perfect *Syllogism* in respect of the firm proof, and imperfect in respect of the evidence of the *conclusion*, one of the premisses being understood, but not expressed.

2. An induction is an imperfect *Syllogism*, in which from many singulars some universal conclusion is inferred; as, this man is a living creature, and that man is a living creature, and so of the rest, therefore every man is a living creature.

In an *Induction*, four things are to be observed.

1. By *singulars* we are not only to understand *Individuals*, but less *universals*, *Specials* in respect of *Generals*, and all *integral parts* in respect of the *whole*.

2. If the enumeration of all the singulars be not full, the *conclusion* will be false.

3. *Induction* is the most convenient instrument to find out *arts*.

4. An

4. An *induction* may be reduced to an *Hypothetical Syllogism*. If Peter be rational, If Socrates, &c. then every man is rational; but Peter & Socrates, &c. are rational, therefore. &c.

3. Example is an imperfect Syllogism, in which from one or more singulars, we infer another particular; as, Catiline was punished for making sedition, therefore this seditious fellow should be punished.

In an *Exemplary Syllogism*, four things are to be observed.

1. An *Exemplary Syllogism* is an imperfect induction.

2. In every *Exemplary Syllogism* there are four terms, and therefore cannot be immediately reduced to a perfect Syllogism.

3. An *Exemplary Syllogism* is but of little force to prove a thing, but of great force to persuade.

4. In an *exemplary Syllogism* this general rule is much observed in the inference; that, like doth agree with like.

4. *Sorites* is an imperfect Syllogism, in which, from four or more premisses, we infer a conclusion, in which the first subject is joyned with the last predicate; as, Socrates is a man, a man is a living creature, a living creature is a body, a body is a substance, therefore Socrates is a substance.

And in this kind of *Syllogism*, three things are to be observed.

1. A *Sorites* containeth as many *Syllogisms*, as there are *terms* between the *subject* of the first proposition and the *predicate* of the last.

2. A *Sorites* may be resolved into *Syllogisms* of the first figure.

3. A *Sorites* is in use only, in such *terms* as are necessarily subordinate, in a *causal* or a *predicamental subordination*. This way of arguing, is grounded upon the first *Antepredicamental rule*.

And thus much concerning a *Syllogism* in the General, and the several kinds, or forms thereof.

CHAP.

CHAP. VI.

Of the first Definition and
Præcognita of Demonstration.

I Come now to speak of a *Special* or *Material Syllogism*, as it is restrained to certain conditions of matter.

2. A *Special* or *Material Syllogism*, is of three sorts; *Apodictical*, *Dialectical*, and *Sophistical*.

3. An *Apodictical Syllogism* otherwise called a *Demonstration*, may be defined two ways, either from the *end*, or from the *matter* of demonstration.

4. From the *end* of *Demonstration* an *apodictical Syllogism* may be defined. *Demonstration* is a *Syllogism* begetting knowledge, or making to know.

5. *Demonstration* among *Geometricians*, is a *Delineation* by *Diagrams*, in which, the truth of their propositions is exhibited unto the eye: but amongst *Logicians* it is sometimes taken for every certain and clear proof; and here it is strictly taken for a *scientific Syllogism*.

6. The *Genus* in this definition is *Syllogism*, in which it agreeth with *Dialectical Syllogism*. The *difference* is taken from the end, which is *Science*.

7. This word *Science* may be taken three ways, *largly*, *strictly*, and *most strictly*.

1. *Largly*, for every cognition or true assent.
 2. *Strictly*, for firm and infallible assent.
 3. *Most strictly*, for the assent to such propositions, as are known by causes and effects: for firm and infallible cognition is either by sense, and so we know that the sun doth shine at noon; or by understanding, as when the question is concerning universal propositions, concerning the truth of which sense is not able to judge; but, the cognition of universal propositions is attained by, or without a *Syllogism*.

8. Cognition is begotten without a *Syllogism*, when full assent is given to a proposition for the clearness of it in its self without any proof. Thus we know that the whole is greater than any part thereof; that God must be worshipped, and such like. This kind of Cognition, Aristotle calls *Intelligence*, and saith it is distinguished from *Science* by this, that *Science* doth proceed from *ratiocination*: but for as much as reason may be brought from several heads, that cognition is here called by the name of *Science*, which

is begot either by the *cause* or by the *effect*. And this is the most strict acception of *Science*, and proper to this place.

9. Or thus, *Science* is a certain knowledge of conclusions, to which we assent, for our preceding knowledge of the premisses: and the *præcognita* in every science are these three, the *subject*, the *affection*, and the *cause*, by which it is demonstrated that the *affection* is in the *subject*.

10. The *Question* to be demonstrated is composed of the *subject* and the *affection*. The *premisses* by which the *Question* is demonstrated, are made, first, by joyning the *cause* with the *effect*, and then by joyning the *cause* with the *subject*. In all these two things are to be considered, the *precognitions*, which precede the demonstration, and the *conditions*, which are to be observed in the demonstration it self.

11. The *Precognitions* are two. 1. *That the thing is*. 2. *What it is?*

12. In these *precognitions*, the things which are *evident* and *obvious* unto all, are so in the *understanding* only; but the things which are not so *evident*, but that they may be *unknown*, are expressed in the very *beginning* of *sciences*.

13. And if being delivered the learner doth
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presently

presently believe them, they are properly called *suppositions*; but if the learner either doubts of them, or be of another opinion, they are called *postulata*, or things to which an assent is requested.

14. The first of these *precognitions*, viz. the *Quod sit*, *That the thing is*, includeth two things. 1. That the thing sought hath a being, or a true existence, and this answereth to the Question, *Is there such a thing?* 2. That the thing sought is the true predicate in a subject.

15. The other of these *precognitions*, namely, the *Quid sit*, *What it is?* doth also include two things. 1. The name, or what the signification of the name is. 2. The nature of the thing, that is called by that name, so that from these two *precognitions* four questions do arise; of which two are simple and two compounded.

16. The simple questions are those which do equally agree, to accidents and to substances. The first is made concerning the essence or existence by asking *An sit?* whether it be or not? The second maketh inquiry concerning the nature of it and asketh, *Quid sit*, *What it is?*

17. The compounded questions chiefly agree with accidents: the first asketh, whether the predicate be in the subject? as, whether man be
rifiable

rifible? The other asketh, *why the predicate is in the subject?* as, *why is man rifible?*

18. Of these *four questions* the *third* hath such reference to the *fourth*, as the *first* hath to the *second*; for then in *simple terms* when we know they have *being*, we ask *what the things are?* and in *propositions*, when we know they have a *being*, we inquire, *why they are?*

19. After these *precognitions* and *questions* the three *præcognita* are next to be considered; namely the *subject*, *affection*, and *cause*.

20. The *subject* is a *simple term*; or *left extremum* in the demonstration, concerning which, some *accident* is demonstrated by its *next cause*; as, *a man*; concerning whom we must both know, *that he is*, and *what he is?* First, *that he is*, or otherwise we seek the knowledge of him in vain, for there is no knowledge of a thing, that is *not*; and then we must also know, *what he is*, not only in respect of his *name* but also of his *nature*, for that must be the *medium* of the demonstration; and we must know the *medium*, at least confusedly, before we can infer the *conclusion*. The *precognition* of the things *existence* is called the *Hypothesis*; of its *nature*, the *Definition*.

21. *Passion* is a *proper Accident* which is demonstrated

monstrated of the *subject* by the *proper cause*, it is always the *greater extrem* which is predicated in the *conclusion*; as, *Risibility*; the which is necessary to be *foreknown* in respect of the *name*, *what it is*? though not in respect of its *nature*; and that it be considered *how it is* inherent; for seeing it supplies the place of the *subject*, it is in some sort called a *substance*. *Arist. lib. 1. post. cap. 27.* but it is not *foreknown*, *That it is*, for that is the thing inquired after, and which we are to find by demonstration.

22. A *Cause* is that, by which the *passion* or *affection* is demonstrated of its *subject*, and is always the *Major* proposition of the demonstration; as, *Every rational animal is risible*; that being known, the *conclusion* is *virtually* known also, as being *virtually* contained in it; but yet it is not *actually* known, till the *Minor* be assumed; which being known, the *Conclusion*, though *after in nature*, yet is known at the *same time* also. *What the cause is*, cannot be *foreknown*, because it is a *compounded* proposition; and *what a thing is*, is only of *uncompounded*; but it ought to be known, *That it is*, or hath a *true existence*, or else the *Conclusion* cannot be inferred from it.

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CHAP. VII.

Of the Conditions to be observed in a perfect Demonstration.

A Demonstration is to be considered, either in the respect of the *matter*, or in respect of the *form*.

2. In respect of the *matter*, one kind of Demonstration sheweth, *why* the predicate is inherent in the subject; and that,

1. By an *immediate intrinsecal cause*, and this is either the before demonstrated *matter*, or *form*, or *affection* of the subject.

2. By an *immediate extrinsecal cause*, and this is either *final* or *efficient* by some *transient action*.

3. Another kind of Demonstration in respect of the *matter*, sheweth that the predicate is inherent in the subject, and that either by the *effect*, or by some *remote cause*.

4. A Demonstration, in respect of the *form*, is to be considered,

1. In *quantity*, and so it is *universal* or *particular*.

2. In *quality*, and so it is *affirmative* or *negative*.

3. In the *manner* of the proof, and so it is either an *offensive* demonstration, or a demonstration *reducing* to some impossible thing.

5. In the *first* of these kinds of demonstration called the demonstration *Cur sit, why a thing is*, the conditions to be observed do partly belong to the *question*, partly to the *cause* or *medium* of the demonstration, and partly to the *premisses*.

6. Every *question* doth not admit of the first and most perfect kind of demonstration, called *why a thing is?* but such a *question* only as is true, and hath a *certain* and *immutable cause* of its own truth.

7. The *conditions* to be observed in the *premisses* of a demonstration, are *absolute* or *relative*.

8. Those are said to be *absolute conditions*, which are suitable to the *premisses* considered absolutely and in themselves; and those are said to be *relative conditions*, which are suitable to the *premisses* in reference to the *conclusion*.

9. The *absolute conditions* are two, the first is, that the propositions be *necessarily true* and *reciprocal*: The second is, that they be *immediate* or *first*.

10. Demonstrative propositions must be
true.

to it is *ne* (for that which is *false* cannot be known) and they must be *necessarily* so, for from propositions *not necessarily true*, no *necessary conclusion* can be inferred; unless by *chance* or *accident*, and they must be *necessarily true* in the highest degree, that is, they must be *reciprocal*. For they contain the *next cause* of the predicate, which is such as that it is *reciprocal* and with its effect.

11. A proposition is said to be *immediate*, in two waies. 1. In respect of the *subject*, when there is no more *immediate subject* between the *predicate* and the *subject*; as, *a man is rational*, *a man is risible*. 2. In respect of the *cause*, when no more *immediate cause* doth intervene between the *predicate*, and the *subject*; as, *that which is rational is risible*; *a man is rational*.

12. In a *most perfect demonstration*, where the *middle term* is the *material* or *formal internal cause* of the *subject*, and *efficient* of the effect by emanation, the *major proposition* is *immediate* in respect of the *cause*, but not of the *subject*, as *that which is rational, is risible*: The *conclusion* is *immediate* in respect of the *subject*, but not of the *cause*; as, *a man is risible*: The *minor* is *immediate* in respect of the *cause* and the *subject* both; as, *a man is risible*.

13. In

13. In a *most perfect* demonstration, where the *middle term* is not the *internal cause* of the *subject*, though both the *major* and *conclusion* be *immediate*, yet the *minor* is not *immediate* in respect of the *cause*. This happens in every chief demonstration from the *external cause*; as also where we proceed from one *affection* predemonstrated, to the demonstration of another; such as are all *mathematical* demonstrations for the most part; *Zab. de medio demonst. c. 7.*

14. The *relative conditions* to be observed in reference to the *conclusion* are *three*: first, that the *premisses* be the *cause* of the *conclusion*; *secondly*, that they be *before*; *thirdly*, that they be *more known* than the *conclusion*.

15. The *premisses* may be said to be the *cause* of the *conclusion*, as the *medium* is the *cause*, why an *affection* is not only the *cause* why the *conclusion* is known, but the *cause* why it is *true*: and as the *medium* is *before* an *affection*, not in *time* but *nature*, so the *truth* of the *premisses* is *first* in nature, *before* the *truth* of the *conclusion*. Lastly, as the *medium* is *more known* than an *affection*, not by a *confused knowledge* and in respect of *use*, but by a *distinct knowledge*, and according to *nature*: so are the *premisses* *more known* than the *conclusion*; because we by *reason*

when the premisses receive the conclusion with full assent of mind, we must needs assent to that conclusion more than to the premisses; for according to Aristotle, That for which another is such as it appears, must needs itself be more such. Lib. I. post. e. ex cap. 2.

from 16. Premisses are of two sorts, Axiomes and Theses.

17. An Axiome is a proposition of whose truth no body can be ignorant, the signification of the words being known.

18. A Thesis is a proposition, whose truth doth not sufficiently appear by knowing only the signification of the words, but by the judgment of the senses, or any other declaration; and it is either a Definition or an Hypothesis.

1. A Definition is that, by which we shew what a thing is. An Hypothesis is that, by which we shew whether the thing be or cannot.

20. The medium of a demonstration ought to be the next cause of the predicate; and that either efficient or final; and the efficient either internal or external.

21. A cause may be said to be the next either absolutely, or in his own kind; here it is understood to be the next absolutely, that is such a cause as doth produce the effect, and without which that effect cannot be:
For

For as much as there are *four* kinds of *causes*, and in every kind some one the *next*, of the four *next* causes, there is but one, that is the next *absolutely*.

22. Moreover it is required that this *next cause* should be the *cause* of the *predicate*, but it is necessary that it should be the *cause* of the *subject* also; for the question is not, whether there be a *subject*? for this is supposed; but whether there be a *predicate*, or whether it be inherent in the *subject*?

23. This *next cause* must be either the *efficient* or the *final*; for when the *predicate* is an *accident* it hath neither *matter* nor *form* properly so called. The *final cause* is used in those things, which are made for other; such as are *mediums* and *natural instruments*; *actions* also and *habits*, if any such can be demonstrated. The *efficient cause* is used in all the rest. Sometimes it falls out that the *next efficient cause* is also the *form* or *matter* of the *subject*, and these kind of demonstrations are indeed the most excellent but do not make a different *species* of themselves, but these things will be more clearly understood by the examples following.

1. Every rational creature is capable of knowledge,

Even

*Every man is a rational creature,
Therefore every man is capable of knowledge.*

In this demonstration the *medium*, rational, is the *internal efficient cause* of the predicate, and form of the subject.

2. *Every terrestrial thing doth sink in water,
Ebene is terrestrial,
Therefore Ebene doth sink in water.*

Here the *medium* is the *internal efficient cause*, and matter of the subject.

3. *Whatsoever doth consist of matter and form hath three dimensions.
Every body doth consist of matter and form,
Therefore every body hath three dimensions.*

Here the *medium* is the *internal efficient cause* of the predicate, and both the form and matter of the subject.

4. *That which hath three dimensions, will not admit of another body in the same place, with it self,
But every body hath three dimensions,
Therefore &c.*

Here

Here the *medium* is the *internal efficient cause* of the predicate, and propriety of the subject.

5. *That which by the interposition of the earth cannot be enlightened by the Sun-beams, doth suffer an Eclipse of the Sun-light,*

But the Moon, the earth being interposed cannot be enlightened by the Sun-beams, Therefore the Moon &c.

Here the *medium* is the *external efficient cause* of the predicate.

6. *Whoso is made for the contemplation of Heavenly things, ought to have his countenance lift up,*

Man is made for the contemplation of Heavenly things, Therefore &c.

Here the *medium* is the *final cause* of the predicate.

24. Sometimes it so comes to pass, that one and the same question may be demonstrated both by the *efficient* and *final cause* so you may demonstrate that a living crea

... doth sleep, either because the common sense is overcome by vapours, and that the passage of the external senses are obstructed, and this is a demonstration from the *efficient cause*; or that the animal spirits may be refreshed and strengthened, and this is a demonstration from the *final cause*.

CHAP. VIII.

Of an Imperfect Demonstration or the Demonstration, What.

HAVING hitherto spoken of the *principal Demonstration*, or the *Demonstration Why?* the next is the *less principal*, or the *Demonstration What?* and which leaveth an imperfect knowledge, and is twofold; the one is from the *effect*, the other from a *remote cause*.

The first of these collecteth the *cause* from some *sensible effect*; for example

Every thing that is risible is rational,
Every man is risible,
Therefore every man is rational!

Here

Here the *medium* is the *next effect*, and the *predicate* is the *cause* of the conclusion.

2. The *second* of these demonstrations collecteth the *effect* from some *remote cause* for example.

That which hath not a sensitive soul doth not breath,

A Plant hath not a sensitive soul,

Therefore a plant doth not breath.

3. A Demonstration from the *effect* may be *affirmative* in *Barbara*, and sometimes *negative*, though seldome, in *Camestres*.

4. A demonstration from a *remote cause* is *negative*, very seldome *affirmative*, and consequently is restrained to the *third figure* in *Camestres*: for example.

Every risible thing is an animal,

No Tree is an animal,

Therefore no Tree is risible.

5. Demonstration from the *effect* is more excellent than from a *remote cause*.

1. In respect of the *form*, the one being *affirmative* in *Barbara*, the other *negative* in *Camestres*.

2. In respect of the *matter* for in the one the propositions are *most necessarily* true, and differeth nothing from the *most perfect* Demonstration, but in placing of the terms, and begetteth a perfect knowledge not simply, but in its kind: but the Demonstration from the *remote cause* is made of *less necessary*, and not immediate propositions, nor doth it beget a knowledge that is perfect in its own kind, and in which the mind may rest satisfied; yet both of them are so perfect, that they are either of them sufficient to beget such a knowledge as to give us satisfaction of the being, or not being of a thing.

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CHAP. IX.

Of Demonstration in respect of the form, and of the Affections of the most perfect Demonstration.

Hitherto we have spoken of the two kinds of demonstration in respect of the *matter*; we are now to speak of them in respect of the *form*.

2. The *form* of a demonstration is partly discerned from the *quantity*, partly from the *quality*, and partly from the *manner* of the proof.

3. The *form* of a demonstration in respect of the *quantity* is *universal* or *particular*:

An *universal* demonstration is that, in which an *affection* is demonstrated of the *form* adequate and *universal* subject by an immediate cause; as when we demonstrate *risibility* in *man*, by his *rationality*, and all the most perfect demonstrations are of this kind, *What a thing is so*. And a Demonstration proceeding from the *effect*, *That a thing is*, is of the same kind also.

A *Particular demonstration*, (not so called if the terms were particular) is a demonstration in which an affection is demonstrated from an inadequate and a less universal subject, or from one part of the first subject only; as, when we demonstrate a man to be sensible, by his sensible soul.

The form of demonstration in respect of quality, is affirmative or negative.

An *affirmative demonstration* is that, in whose conclusion the predicate is affirmed of the subject, which happens in all demonstrations, except the particular, which is sometimes negative.

A *Negative Demonstration* is that in whose conclusion the predicate is denied of the subject.

Every thing that breatheth is an animal.

A wall is not an animal,

Therefore a wall doth not breath.

And this doth often come to pass in the demonstration That, from a remote cause; it may also happen in all other demonstrations though very seldome, and that by consequence only: for an affirmation is before negation, both in reference to the thing, and our knowledge of it.

5. The *form* of a demonstration in respect of the *manner* of the proof, is either *ostensive*, or by *reduction to impossibility*.

An *Ostensive Demonstration* is that, in which the conclusion is evidently and directly inferred from former and more known premises, &c. Of which sort are all the before named kinds of demonstration.

A *Demonstration by reduction to impossibility* is, when from granted premisses we prove the conclusions to be therefore true, because their contradictories are apparently false; for example

Every rational thing is risible,
Every man is rational,
Therefore every man is risible.

Here if the *major* be denied, we may reduce the respondent to an absurdity by taking the contradictory of the *major* thus,

No rational thing is risible,
Every man is rational,
Therefore no man is risible.

Which conclusion being manifestly false, we infer that the *major* in the former syllogism, well as the conclusion were both true; or that

the two contradictories are together, true or false; and this kind of Demonstration is the meanest of them all.

But here we must observe, that an *universal contrary proposition*, is rather to be taken, than a *particular contradictory*; both because *particular propositions* have no place in demonstration, as also because *contrary propositions* in *necessary matter*, stand in the place of *contradictory*. Zabarel. lib. 1. post. c. 22. sect. 176.

And thus having done with the *kinds* of demonstration; I come in the next place to speak of the *affections* of the chiefest and most perfect demonstration, and they are chiefly three, *Analysis*, *Regressus*, and *Conversion into a Definition*.

1. *Analysis* is the resolution of effects into their first causes to beget a perfect knowledge thereof; for when there is a certain chain and subordination of *efficients*, and *effects*, although the latter may be demonstrated by the former, yet the mind is not satisfied in that, but inquireth further for the cause of that effect also, and so forward, to the first cause which is the *form* of the subject; of which no cause can be given, and in which alone the mind is satisfied; as, if *Augmentation* in

all things living were demonstrated by *nourishment*, and that again by the *vegetative faculty*, and that by the *soul*.

1. *Regressus* is the *reciprocation of the cause and effect by demonstration*: which effect we do *reciprocally* demonstrate by that *cause*, by which the said effect was it self demonstrated: this *affection* or *power* is called *Regressus*, because after our understanding hath proceeded from la kind of confused and experiential knowledge of the effect, as nearer to sense, to the like confused knowledge of the *cause*; and hath ripened that knowledge by often meditating on, and comparing of the *cause* to the effect, till it come from a confused to a distinct knowledge: then it returns from that distinct knowledge of the *cause* to the like distinct knowledge of the effect. *Progress* is therefore made by the demonstration *That*, and by an after demonstration, and hath respect unto the confused knowledge of the *cause* by the effect. But *regress* is by the demonstration *Why*, and by a former demonstration and hath respect unto the distinct knowledge of the effect by the *cause*, and differs from that vicious demonstration, which they call a *circle* in three things.

1. In the *form*; for a *circle* doth from the *premises* demonstrate the *conclusion*, and from the

the *conclusion* put into the place of the *Major* and the *Minor* simply converted, it doth again demonstrate the *Major*; then again from the same *conclusion* put into the place of the *Minor*, and the *Major* simply converted in the place of that, it doth demonstrate the *Minor*: which any one, that will, may experiment by this instance.

*Every rational thing is risible,
Every man is rational,
Therefore every man is risible.*

But in *regress* we only demonstrate the *minor*, from the *major* simply converted, and the *conclusion* put into the place of the *minor*. And so there will be a *natural predication* in every proposition, the which is not in a circle.

2. In the *Matter*; for the *matter* of a circle or *middle term*, is uniform in both the demonstrations, seeing it is the *next cause* of the *major extreame*, proving *why a thing is*; but in *regress* the *effect* doth first demonstrate, *that there is a cause*, then after consideration had about the *cause*, the *cause* doth demonstrate *why there is an effect*.

3. In the *end*; for in a circle the same thing is both *beginning* and *end*, seeing it proceeds

from a *cause* distinctly known, to a *cause* distinctly known, and returns from *this* to *that*; but in *regress*, the *end* is a distinct knowledge of the *effect*, and the first *progress* is from an *effect* confusedly known to a *cause* to be confusedly known; but from a *cause* confusedly known, consideration being had, we come to the distinct knowledg of the *cause*, and from that once habituated and radicated in the understanding, we return to the distinct knowledge of the *effect*.

3. *Conversion* of a demonstration into a *definition* is, when from the terms of a demonstration, the *definition* of a *proper accident* is framed by *transposition*. And the *definition* of a *proper accident* is twofold.

1. *Partial*; and that is either,

Nominal, which consists of a *Genus* and a *subject*; as, *an Eclipse in the defect of light in the Moon.*

Causal, which is the *middle term* in the most perfect demonstration, shewing, *why there is an effect*; as, *an Eclipse is the interposition of the Earth.*

2. *Total*, which being made of the *nominal* and the *causal* both, doth consist of a *Genus*, a *subject*, and the *next cause*; as, *an Eclipse is the defect of light in the Moon, by reason of the interposition of the earth.*

A *nominal definition* is the conclusion of the of the demonstration: A *causal* is the beginning: A *total* is an intire or whole demonstration, differing in nothing from it, but the placing of the terms: for the thing defined is the greater extreme, the lesser extreme the subject, and the cause the middle term.

CHAP. X.

Of a Topical Syllogism in the General.

Hitherto we have spoken of a *demonstrative Syllogism*, whose matter is necessary, and the end a perfect knowledge: come we now to a *dialectical or topical Syllogism*, whose matter is probable and contingent, and the end, opinion.

2. In a *dialectical or topical Syllogism*, we are to consider of *Problèmes, Propositions*, and the invention of arguments.

3. A *Probleme or Question*, is the thing of which it is probably discoursed, and the conclusion of a Syllogism already made. But that this Problem may be *dialectical*, two conditions are required.

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1. That

1. That it be profitable either to life, and then it is called a *moral Probleme*; as, *whether pleasure be good?* or to knowledge, and then it is called a *Physical* or a *natural probleme*; as, *whether the world be eternal?* or to some thing that is *subservient* unto these, and then it is called a *Logical Probleme*; as, *whether division be a Syllogism?*

2. That it be doubtful, in which either the common people do dissent from wise men; as, *whether riches make men happy*: or the common people dissent among themselves; as, *whether usury be lawful*; or the wise men dissent among themselves; as, *whether the heart be the most noble part of man*.

4. The parts of a *Probleme* are the two terms of *subject* and *predicate*. As concerning the *subject* I give no directions, because a *dialectical Syllogism* is not restrained to any certain subject. But the *Predicates* according to *Aristotle* are four, *Genus*, *Definition*, *Accident proper* and *common*. He adjoineth *difference* to *Genus*, if it be more comprehensive than the *species*, or to *definition* if it be reciprocated with the *species*: if the *species* chanceth to be attributed in any *Probleme*, it is reduced to *Genus*.

5. *Dialectical Propositions* ought to be certain, at least probable and not *Paradoxes*.

6. That

6. That is said to be *probable*, which not being *absolutely true*, doth rather seem to be true, than false. There are five degrees of probability; for that is said to be *probable* which seemeth to be true, either to *all*, to *most* men or unto *wise men*, and that either to *all* of them, or to the *most*, or to the *wisest* of them.

7. That is said to be a *Paradox*, which is true, though contrary to the *vulgar opinion*.

8. For the invention of arguments, we are to consider *common places* and *rules*.

9. A *place* is a *sense* or *common note*, by whose help an argument is found.

10. A *Rule* or *Canon* is a proposition containing the *reason* of the consequence in a *dialectical Syllogism*.

11. *Arguments* are of two sorts, *artificial* and *inartificial*.

12. *Artificial arguments*, are such as from the consideration of the parts of the *probleme*, are not found but by *rules of art*.

13. *Inartificial arguments* are such as are found *without any help* of art, and these are nothing but *testimonies*.

14. Several men do reckon the order of these *heads* or *places* severally. Aristotle reduceth all *heads* to the *four predicates* mentioned

tioned before; some for the more plainness and distinction, reckon up *twenty and five*; and this number some contract to *thirteen*; others to *ten*; and perhaps they may without any inconvenience be reduced unto *seven*.

1. The *Cause* and the *Effect*. 2. The *subject* and the *Accident*. 3. *Dissentany* and *Comparison*. 4. *Conjugates* and *Notation*. 5. The *whole* and its *parts*. 6. *Genus* and *Species*. 7. *Definition* and *Division*. In every of these *places*; I will in the proposed order shew you the *Canons* to be observed, and the restrictions of them.

CHAP. XI.

Of the Topicks from the Cause and the Effect.

THERE are *four* kinds of *Causes*, *efficient*, *material*, *formal* and *final*; there are several sub-divisions of them, but these following are the most convenient to our purpose: as, 1. Into *total*, as *Gold* is the cause of *money*, the *Sun* of the *day*; and *partial*, as, *timber* is the cause of a *house*; *nature* of *learning*. 2.

Into

into a cause actually, as, a builder is the cause of an house; and a cause potentially, as, an architect may build an house. 3. Into a remote cause, as, a feast may be the cause of sickness; and the next cause, as, crudity in the stomach is the cause of sickness. 4. Into a cause simply and by it self, as, the Sun is the cause of light; and a cause by accident, as, the Sun of blindness.

The Canons or Rules of this Topick are these.

1. The cause being granted, the effect cannot be denied; and, if the cause be taken away, the effect is taken away also; as, if the Sun shine, it must be day, if the Sun doth not shine, it is not day; the former part of this Canon hath four limitations.

1. In a remote cause; as, he that drinks wine is not alwaies made drunk. 2. In a cause that is obstructed in its operation; as, heavy things do not alwaies descend, because they may be hindered by some thing that holds them up. 3. In a cause by accident; as, he that diggerh in the earth doth not alwaies find gold. 4. In a cause not sufficient of it self; as, he is not alwaies learned that is industrious; nor that ground alwaies fertil, that is well tilled; because so both

both these more is required.

The latter part of this Canon hath three limitations. 1. In a cause by accident; as, he that doth not dig into the earth may find a treasure. 2. In a cause that may, but is not; as, a building may stand, though the Architect be dead. 3. As oft as the effect may be produced by diverse causes; as, Socrates may die; though he doth not drink poyson.

2. The effect being granted, the cause is also so granted, and the effect being taken away, the cause is taken away also. The first part of this Canon hath three limitations. 1. In an effect by accident; as, a treasure may be found though the earth be not digged. 2. In an effect that doth remain after the cause; as, the house may remain, though the builder be dead. 3. In an effect that may be produced by diverse causes; as, a man may die, though not by poyson. The latter part hath also three limitations. 1. In an effect by accident; as, a man may dig in the earth, and not find a treasure. 2. In an effect which was, but is not; as, a building may be destroyed though the builder be living. 3. In an effect produced by a free agent; as, there may be a Physician although he doth not cure any disease.

3. *Such as the cause is, such is the effect, and the contrary*; as, if the tree be good, the fruit will be good, and the contrary; both parts of this Canon have two limitations. 1. *In equivocal causes and effects*; as, the draught may be beautiful though the painter be deformed. 2. *In a material cause*, for some thing that is extrinsecal; as ice is not fluid because water is so.

4. *That for which anything is such, is much more such it self*; as, the air being hot by reason of fire, doth argue that fire is much hotter than air.

This rule faileth. 1. Where both are not such; as, wine which maketh a man drunk, is not it self more drunk, because drunkenness cannot be said to be in wine. 2. Where it doth not receive more and less; as, a father is not more a man than a son, although he be the cause why the son is a man; for humanity doth not receive more and less. 3. In a cause not sufficient of it self; as, a Master which maketh his schollar learned, is not alwaies more learned than his schollar; for by his ingenuity and industry it sometimes so comes to pass, that the schollar is more learned than the master.

5. *The cause is in nature before the effect*; as, reason before risibility; and this never faileth.

faileth; for a *final cause* in which it only seems to fail, although it be in *act* and *execution* after the *effect*, yet it is before it in the *intention* of the *agent*, for which only reason it is the *cause*.

CHAP. XII.

Of the Topicks from the Subject and the Accident.

WE do not here take the *subject* for *substance* in which the *accident* is *inherent*, or *accident* for that which doth precisely and adequately adhere to the *substance*; but *subject* is here taken for all that, to which *any thing* not belonging to its *essence* is *attributed*: An *accident* is here taken for every such *attribute*; as, *number* is the *subject* of *equality*, that is, it is an *accident* of an *accident*.

An *accident* may be divided many ways, and so may a *subject*, for an *accident* is 1. either *proper* or *common*. 2. *Separable* or *inseparable*. 3. *Inherent* or *internal*, and *adherent* or *external*. 4. And chiefly it is either *accidental*, as, *weariness* doth accompany a *feaver*, a *pale*
M^{on}

only Moon, rain, and all prognosticating signs: Con-
comitant, as an Eclipse of the Full-Moon,
the and consequent, as, a day, to the twilight;
rea- signs and circumstances do also belong to this
Topic.

The Canons or Rules are five.

1. The subject being granted, the proper ac-
cident is also granted; and being taken away
the proper accident is taken away also, and the
contrary; as, if be be a man, he is risible, and
the contrary; and if be be not a man, he is
not risible, nor the contrary. This rule ne-
ver faileth by reason of the reciprocation
for of the subject and the proper accident.

2. The subject being granted, the common
accident is also granted, but not the contrary;
as if it be snow, it is white; but if it be white
it is not therefore snow. The first part of
this rule faileth in separable accidents; as if
it be water it is not therefore cold. And the
latter part faileth; 1. In a proper accident,
the first way; as, if there be knowledge there
is a man; 2. In an individual accident; as
if there be this whiteness, there is snow; be-
cause an accident doth not change its sub-
ject.

3. A common accident being taken away,
the subject is taken away, but not the contra-
ry; as, if it be not white, it is not snow
but,

but yet there may be *white*, though there be no *snow*. The first part faileth in a separable accident, the latter in a proper accident, the first way; and in an individual accident and subject, as in the former rule.

4. The thing being granted, the circumstance of time and place is granted, and the circumstance being taken away, the thing is taken away; as, if Milo did kill Clodius, then Milo was living and present; if he was neither living nor present he did not kill him. This rule never faileth in any requisite circumstance, necessarily.

5. The antecedent, concomitant, & consequent being granted, the consequent, concomitant and antecedent for every exigence is also granted; to wit a concomitant in being, an antecedent in being, or that hath been, a consequent in being, or that will be, and being taken away the other is taken away also; as, if there be an Eclipse there is a full Moon; if there be a birth there was a conception; if there be a twilight, the Sun will rise. This rule faileth; 1. In a thing not cohering necessarily; as he which is a Philosopher, must not of necessity be therefore poor; and if there be a Comet, it doth not follow there must be war. 2. In things cohering necessarily, if there be not a mutual necessity; for though it be true, that if there

be an Eclipse there is a Full Moon; yet it doth not follow that if there be a Full Moon there must always be an Eclipse; yet these things not necessary are of great force to beguile belief, especially if many of them shall be joined together in one. Hence Astrologers, Physiognomers and Orators do highly value this Topick, in questions of fact especially.

CHAP. XIII.

Of the Topicks from Dissentany and Comparison.

Dissentanies are either Opposites or Disparates; as, a Horse and a Bull. There are four kinds of Opposites, of which, Book I. Chap. 13. Comparisons are either in respect of quality, as like and unlike, or in respect of quantity; or also of degrees, as equal and unequal; and whatever may be said to be more or less and equal. All which have their several Rules or Canons.

Concerning Relative opposition the Canon is, One of the relates being granted, the other is granted also, and one being taken away, the other

ther is taken away also; as, if there be a son there is a father &c. This rule faileth; 1. In accidental relations, as it being granted that there is something knowable, it doth not follow that there is a knowledge of it. 2. If it be understood of the same subject; as, he which is the father of this man may not not be at all, but it is impossible, that he should be the son of him, of whom he is the father.

Concerning contrary opposition the Canons are these following.

1. One of the contraries being granted the other is taken away; as, if water be warm, it cannot be cold. This rule faileth in remission of qualities, for the water which is hot to six degrees, is cold to two; because the remission of quality is alwaies by admission of the contrary.

2. One of the contraries being taken away, the other doth remain; as, if water be not dry it is moist. This rule faileth 1. In immediate contraries; as, Honey is neither white nor black, but yellow. 2. In an incapable subject, as, a soul is neither white, nor black, nor hot, nor cold.

3. Contraries have the same Genus and subject; as, if white be a colour, black is a colour also; if love be a concupiscible faculty, so is hatred. This rule never fails.

4. Contraries

4. *Contraries have contrary causes, effects, properties, and next subjects; as, if grief be to be avoided, pleasure is to be followed; and if cold congeals, heat dissolves.* This rule faileth; 1. in the predications of a Genus or a Generical affection; as, because *whiteness is a colour or visible*, it doth not follow that *blackness is not a colour*. 2. If the nature of the subject will not bear it; as, because *health is agreeable to living creatures*, it doth not follow that *diseases are agreeable to things without life*, but rather the contrary. 3. In causes by accident; for if a good man doth love and defend his children, it doth not follow that a wicked man must therefore hate and destroy his, because to love his children, is not so much from virtue, as nature. 4. In causes whose action is determined by the disposition of the matter; for cold doth not therefore soften dirt, because heat doth make it hard.

5. *The contrary of a greater good is a greater evil, and the contrary; as, because that health is better than riches, therefore sickness is worse than poverty.* This rule faileth where one of the good things is included in the other, or supposed by it; as, it is more advantageous to be a Philosopher than to know letters; but yet of the two, Philosophy may be best spared.

The Canons of privative opposition are these two.

1. The habit being granted, privation is taken away, and the contrary; as, if a man doth see, he is not blind; if he be blind, he doth not see. And this rule never faileth.

2. The habit being taken away, privation is granted, and the contrary; as, he doth not see, therefore he is blind. He is not blind, therefore he doth see. This rule faileth; 1. in an incapable subject; as, a stone doth not see, and yet it is not blind. 2. In a capable subject, before the time in which it is capable, and therefore though a whelp doth not see, untill it be nine days old, yet cannot it be said to be blind.

Of contradictory opposition there is one only never failing Canon, One of the contradictories being granted, the other is taken away, and one being taken away the other is granted; as, if a wall be white, it cannot be said, to be not white; if it be not white, it cannot be said to be white.

The Disparates have but one Canon, One of the Disparates being granted, the rest are taken away; as, if Socrates be a man, then he is neither a bull nor a stone. This rule faileth in accidents, when they are attributed unto subjects.

Subjects in the concrete, for the same *mess* may be white and sweet.

The *Canons* of like and unlike, proportional and unproportional are these.

Like and proportional do agree with like and proportionals; dislike and unproportional do agree with dislike and unproportionals; as, if Plato be mortal, Socrates is also mortal; if the eye directs the body, then reason should direct the mind. This rule faileth unless it be understood reduplicatively, that is of like as like; for every like is also unlike, or else it could not be like, but the same; and hence a Crow cannot be said to be rational, because a Blackmore is so, and so of the rest: And here the respondent (if he do except against the arguments founded on this Canon) must shew in what the things propounded are like or unlike.

Probable propositions, and things compared among themselves, are said to be more and less and equal. The *Canons* concerning comparison of things are general or special.

The general rules are these.

1. That which is such by nature, is more such than that which is so by participation; as, the Sun is lighter than the air.

2. That which is by it self is more so, than that which is by accident.

3. That

3. That which is more remote from the contrary, is more than that which is nearer; as, the air is colder under the Poles, than under the Tropick.

4. That which makes more, is more than that which maketh less; as, fire vehemently heating.

5. That in which the cause is more inherent, is more than that in which it is less; as, a young man is stronger than an old.

6. That to which the definition or the mean is more agreeable is more than that to which it is less; as, that which doth more conduce to the end, is more profitable, and many more which do all fail, unless there be a restriction of the rest being like; for terms of comparison do almost exceed one another mutually and are exceeded.

Special rules concerning that which is more or less good are these.

1. The more good things there are in any subject, the better it is; as, peripatetick felicity, is better than the Stoick.

2. The more it is good to, the better; as, Justice is better than fortitude.

3. That which is desired for it self, is better; as, peace is better than war.

4. That which is in it self good is better; as, good laws are better than evil manners.

5. That

5. That which is more durable, is better; as, vertue is better than beauty.

6. That which is solitarily good is better; as, a competency is better than great riches.

7. That which hath the more noble object, is better; as, Divinity is better than Physick.

8. That which leads to perfection is better than that which serves for necessity; as, seeing is better than feeling.

9. That which is the nearer to the end is the better; as, the Harvest is better than seed-time.

10. That which tends to the more noble end is the better; as, Liberal Arts are better than Mechanical.

11. That which is the more like the better is better; as, Brass is better than Lead. And many more of this kind Lib. 3. Aristotles Topicks. All which are to be understood with this limitation, that all other things be answerable.

The Canons of the Probabilitie of propositions are these.

1. Of such propositions, which are equally such or not such; if one be such, the other is, if the one be not such, neither is the other; as, honour and riches do both seem to conduce alike to happiness; if honour

H

therefore

therefore do not make a man happy, neither do riches; if meat be necessary to maintain life, drink is also necessary.

2. If that which seems more to be such, be not such, that which seems less to be such is not such; as, all that like Mavius, do not like Homer.

3. If that which doth less seem to be such be such, then that which doth more seem to be such is such also; as, if he that is guilty of theft deserves to be hanged, he that is guilty of Sacrilege, doth much more deserve it.

CHAP. XIV.

Of the Topicks concerning Conjugates, and Notation.

THEY are properly called Conjugates which for the affinity of signification have also an affinity in the voice or sound; as, just, justice, and justly; some Conjugates are only nominal, some real and some both, and do comprehend Denominatives under them, and are either substantives, where one is Noun Substantive, abstracted from the subject; as, justice, just; or an Adjective, where they be both Denominatives, or Concretes,

which

which shew the form in the *abstract*; as, *just, justly*. *Notation*, or *Etymology*, is the explication of a word by the original thereof; as, a *Consul* from *counselling the common-wealth*.

The *Canons* or *Rules* of *Conjugates* are,

1. That to which one of the *conjugates* doth agree, the other doth agree also; and the contrary; as, if *Socrates be just, he will do justly*. This rule faileth 1. In those which are *nominal Conjugates* only; for if *Socrates drink wine*, it doth not presently follow, that he is a *wine-bibber*, that is, a *drunkard*. 2. When we argue from one or some *far actions*, that there is a *habit*, and therefore it doth not follow, that *Socrates is just*, because he hath done some things that are *just*. 3. When we argue from the *power* to the *act*, as, *Socrates is risible*, though he do not laugh at present.

2. If one of the *Conjugates* may be predicated of one, the other may be predicated of another, and so also negatively; as, if *whiteness be a colour*, *white shall be a thing coloured*. This rule faileth 1. In those which are *nominal conjugates* only; as it doth not follow that *wine is an evil thing*, because *wine-bibbing* is so: 2. In arguing *affirmatively*;

from the *concretes* to the *abstracts*, where the predication is not by it self; as, it doth not follow that *whiteness* is *sweetness*, because something that is *white* (as *milk*) is *sweet*.

3. In arguing *negatively* from the *abstracts* to the *concretes*; as, because no *whiteness* is *sweetness*, it doth not follow that *nothing that is white, is sweet*.

The *Canons* of *Notation* are two.

1. That which doth or doth not agree to *notation*, doth, or doth not agree with the thing noted; as, if the study of *wisedome* be to be preferred before the study of the *military art*; *Philosophy* is also to be preferred before the *military art*.

2. That of which the thing noted is predicated, *notation* is also predicated, and the contrary; as, if there be a *solstice*, the *Sun* doth stand; if there be no holy thing taken away, there is no *Sacrilege*.

The *Topick* from *notation* is more delightful than forcible; and the *Canons* thereof do fail very often; as, 1. If the *notations* be too much strained; as, it doth not follow that *Thomas Perseval* is therefore *wiser* than other men, because he doth perceive all. 2. If in argumentation a *true notation* or *etymology* be not taken in a *true manner*; as, it doth not follow that *Socrates* doth teach or instruct his pupils because

because he is a *teacher*, for he is indeed called a *teacher* from *teaching*, or because he *ought to teach*; not because he *doth alwaies actually*. And by several other waies, which a diligent observer may easily understand.

CHAP XV.

Of the Topicks from the Whole and his Parts.

THe whole and its parts are relations. The whole is that which is composed by the union of all the parts; as, a man: The parts are those which are united in the whole; as, the head, the breast, the legs. The essential parts of an essential whole are matter and form. The integral parts of an integral whole are those which differ so in their scituation, as that one part may be separated from another; as the parts of a house are, the foundation, the walls, the roof. An Homogeneal Integer or whole is distributed into Homogeneal or similarity parts, of which every one hath name and definition of the whole; as, every part of water is water. An Heterogeneal whole is distributed

buted into *Heterogeneal* or *dissimilary* parts, which have *distinct* names and natures from the whole; as, the parts of a man are the head, hands, feet, &c. Parts may be considered either every one single by its self, or all of them jointly and together.

The *Canons* or *Rules* are these.

1. The whole being granted, the parts are granted also; as, if there be a house, there is a foundation.

2. If the parts be taken away, the whole is taken away also; as, if there be no foundation, certainly there can be no house; both these rules fail, 1. In *equivocal* parts, and parts so called *improperly*; as, it doth not follow, that he is not a man, because he hath neither hair nor nails. 2. In a whole, that is lame in some part not simply necessary: as he may be a man, though one of his fingers or hands be cut off.

3. The whole being taken away, the parts are also taken away; as if there be not a house, there is not a foundation.

4. The parts being granted, the whole is also granted; as if there be a foundation, walls, and roof, there must be a house. Either of these rules fail, when the parts are taken by themselves; as, there may be a foundation, though there is not a house as yet.

CHAP. XVI.

CHAP. XVI.

Of the Topicks from Genus and Species.

TOpically *Genus* and *Species* are not always taken as in the *predicables*: for here *Genus* is every *essential predicate*; whether it be a *Genus*, properly called the *predicate* of some *species* or *individual*: as *animal* is spoken of *man*, or of *Socrates*; or a *species* spoken of *individuals*, as *man* of *Socrates*; or whether a *Generical* or *specific* difference be spoken of the *inferiour Species*, which it doth constitute; as, *sensibility* of *man*; *rationality* of *Socrates*.

In like manner by *Species* here, we do not only understand that which is properly so called, which is immediately under his *Genus*, but a *specific difference*, and also an *individual* it self; and whatsoever is *subjected* to something *superiour*, in that particular in which it is *subjected*, is called by the name of *Species*.

The *Canons* or *Rules* of *Genus* and *Species*, are

1. If the *Genus* be taken away, the *Species*

is taken away also; as, if there be not an *Animal*, there is neither *man* nor *beast*, nor *reasonable creature*.

2. *The Species being granted, the Genus is also granted*; as, if there be a *man* or something that is *rational*, there is an *animal*. These rules hold alwaies.

3. *What doth or doth not agree to the Genus, doth also agree or not agree to the Species*; as, if an *animal* be *sensible*, a *man* is so; if it be not *incorporeal*, neither is a *man*. This rule faileth 1. In a *material* or *simple supposition*, for neither is *man* a *Genus*, because there is an *animal*, or not a *Species*, because there is not an *animal*. 2. In those things which do agree or not agree in *part* only and not *universally*; as, neither is a *man* *irrational* because some *animal* is so, or *not rational* because some *animal* is *not rational*.

4. *What doth or doth not agree to a Species, doth or doth not agree unto its Genus*. This must be explained *two* waies. 1. *What doth or doth not agree to any Species, doth or doth not agree to its Genus in part*; thus are *Syllogisms* in the *third figure*; as, if *man* be *rational*, or not *fourfooted*, certainly some *animal* is *rational*, and some *animal* hath not *four feet*. 2. *What doth or doth not agree to all the Species, doth or doth not agree to all the*

the *Genus* : hence *inductions* are formed ; as, if a *man*, a *horse* &c. be *sensible*, or are not *immortal* ; certainly every *animal* is *sensible*, and no *animal* is *immortal*.

CHAP. XVII.

Of the Topicks from Definition and Division.

Definition; *Topically* taken, doth comprehend not only every *essential* definition, but every *perfect* description of a thing also, and every *convertible* predicate, as the *constitutive* difference and *proper* accident. But *division* is so taken, as in the *second* book of *Logick* is expressed, *Chap. 2.*

Definition hath this only *Canon*. *The definition being granted or not granted, the thing defined is also granted or not granted; and the contrary; as, if there be a rational creature, there is a man, and the contrary; if there be not a man, there is no rational creature, nor on the contrary.* This rule faileth in those things which agree to the *definition* or the *thing defined* as a *definition* or *thing defined*; for if a *rational creature* be a *compounded* speech, it doth not follow that there

is a man, otherwise it is alwaies true; for 'tis founded in their mutual reciproca-
tion.

Division hath this only Canon also: One or other of the dividing members being taken away, the other is taken away also, and one being granted, the other is also granted; as, if this animal be not a brute, it is a man, if it be a man, it is not a brute. This doth always hold in every good division; for it is founded upon these two Canons of a perfect division. 1. The members do take up the whole that is to be divided. 2. The dividing members are contrarily distinct and opposite, so that they can neither agree nor be confounded.

CHAP. XVIII.

Of the Topick from Testimony.

WE are now to speak of *inartificial arguments*, or such as are void if not against the rules of art. These contend not with strength of reason, but authority: and are drawn from Testimony or Wit-
ness.

Testimony.

Testimony or Witness is either,

By Revelation, as the Scriptures,
Dreams and Visions &c.

By operation, as the judgments of
Divine God, miracles, experiences of Gods
justice, power, and providence; and un-
to this the Testimony of nature may
be referred.

Proper, as the Testimony of the
senses.

Publick, as Customs, Laws,
Manniments &c.

Private; as, Confessions,
Wills, Oaths, Compacts, the
judgment of Authors, and
such like.

Some Testimonies are more firm than o-
thers, concerning which many Canons or
Rules might be given; some of the chief are
these which follow.

1. Testimony in the negative is of no value, for it
doth not follow that it is not so, because Aristotle
hath nowhere made mention of it. This rule
faileth; 1. In those things which are not to be
commanded without a certain authority; as be-
cause it is not in the Scriptures, therefore it is

not

not to be *believed*; nor is it a *capital* crime to *swear rashly*, because no law hath made it *capital*. In those things in which an *author* either should or hath promised to discourse *perfectly*; as, *Aristotle lib. 1. Metaphys.* where he promiseth to enumerate the several *species* of *quantity*, yet makes no mention of *place*; is not *place* therefore one *Species* of *Quantity*?

2. *Divine Testimony* is of *infallible truth*; as, *Christ* is the *Messiah*, because the *Scripture* saith it. This *Rule* never faileth.

3. The *Testimony* of *sense* is surely to be *believed*; as, *fire* is *hot*, because *sense* sheweth it to be so. This rule faileth when a reason can be *shewed*, that the *senses* are deceived; as, a *staff* is not therefore *crooked*, because it seems so when it is in the *water*.

4. An *artist* is to be *believed* in his own art; as, a *perfect birth* may be in *seven months*; as *Hippocrates* affirmeth. This rule faileth; where others as *skilful*, or more *skilful* do think and affirm otherwise: as there are no *Idians*, though *Plato* affirm it, because *Aristotle* doth oppose it. 2. Where *sense* or *reason* doth contradict; as *Snow* is not *black*, though *Alexandros* doth say it; nor,

of
an

Chap. XVIII: of Logick.

an elementary nature, though *Aristotle* doth affirm it; because the one is contrary unto *sense*, and the other unto *reason*.

5. *The Testimony of many is to be received, before the Testimony of a few*; as it is more probable, that there is an element of fire, because many think so, then that there is not, that being the opinion but of a few. This rule faileth 1. When the fewer are the wiser; as, *veritas* is to be preferred before riches, because the wiser sort do think so. 2. Where the fewer in number do give the strongest reasons; as, *Logick* is an art rather than a science, though they are the fewer number that think so, because it appears to be so by most firm and strong Arguments.

6. *The Testimony of the Antients is to be preferred before the testimony of the Neotericks*; which is especially to be received in things belonging to piety and good manners; for in things of art and ingenuity, the antients without doubt are much outdone by men of later years; it being easier to add something to things already-invented; than to find out new inventions.

CHAP. XIX.

Of Fallacies in the General.

Hitherto we have spoken of a *true Syllogism*, as it consists either of *necessary* or *probable* matter; it remaineth now that we speak of a *Sophistical Syllogism*.

A *Sophistical Syllogism*, is a *captious argumentation*, which is *seemingly only* or *apparently true* or *probable*, but is *indeed deceitful*. And the Antients did call those *Sophisters* which endeavoured to obtain *Glory by disputation*, and that by *five waies* or means especially by forcing the *respondent*,

1. To *Redargution*, which is the *denial* of something that was *before granted*, or the *concession* of something that was *before denied*. When the *respondent* is forced to *contradict* himself.

2. To something that is *false*; as, when he *admits* of something that is *apparently known* to be so.

3. To something *contrary to common sense*; as, when he *admits* of some *proposition*, that

that is *contrary* to the *common received opinion*.

4. To some *Solacisme*; as when he admits of some thing *contrary* to the *rules* of *Grammar*; or,

5. And lastly, to some *trivial* and *vain* thing; as when there is a *vain* and *useless* repetition of the same thing.

These *fallacious* waies of arguing, *Aristotle* hath well referred to these *two* heads, to *Fallacies* in *words*, or in *things*: Of *Fallacies* in *words* he reckons five. *Ambiguity*, *Amphibolie*, *Composition*, *Division* and *Figure* of a *word*: Of *Fallacies* in *things* he names seven; *Accident*, Of a thing spoken after a sort to a thing spoken simply, *Ignorance* of the argument, A false or wrong Cause, Consequent, *Begging of the question*, and, An asking of many questions.

CHAP. XX.

Of Fallacies in Words.

ALL Fallacies in words arise from some Multiplicity that is in them; and the multiplicity that is in words, is either *Actual*, *Potential*, or *Phantastick*.

1. *Actual*, when a word without variation hath many meanings; as, in *Æquivocation*, and *Amphibolie*.

2. *Potential*, when a word being altered in the pronounciation, hath many meanings; as in *Composition*, *Division*, and *Accent*.

3. *Phantastick*, when a word doth really and indeed signifie but one, and yet doth seem to signifie many things, as in the figure of a word.

A Fallacy of *Æquivocation*, or *Homonymie*, is when some simple word is diversly taken in the several propositions of the same Syllogism, and this may be three waies.

I. When one word is applied to several things; for example,

Every

Every Dog doth bark,
The Dog star is a Dog,
Therefore the Dog star doth bark.

2. When a word properly signifying but one thing is by *Analogy* or *Metaphor* applied to another; as if one would prove that water hath feet, because it runs, or the meadow a mouth, because it smiles.

3. When there is some ambiguity in respect of the *accidents* of the parts of speech according to *Grammar*; as, if one would prove that he which is sitting doth stand, because he did rise.

In these *Fallacies* there are four terms; and may be resolved by shewing the several significations of the ambiguous word.

A *Fallacy* of *Amphibolie* is when some sentence is doubtful by reason of the construction, and this may be three waies.

1. The construction of the words being the same but under a diverse habitude; as, if one would prove this to be Aristotle's book, because he made it.

2. By changing the order of the constructions, as; thus,

That

*That which one doth see is true,
But you saw Thomas drunk,
Therefore it is true that Thomas was drunk*

3. When a sentence hath both a proper and a Metaphorical sense; as thus,

*They which laugh have mouths,
The Meadows do laugh,
Therefore the Meadows have mouths.*

And to this belong all proverbial speeches, and may be resolved by shewing the ambiguity of the sentence.

A Fallacy of composition, is when such words are joined together which should be disjoined; and the contrary unto this is a Fallacy of division; when such words are severed which ought to be joined together; both of these may happen four waies. 1. When the dictum in a modal proposition may be put for its whole self, or for a part of its self: as for example, *It is possible for him that is sitting to run*; the which proposition is false if taken together, for while he doth sit, he cannot actually run; but being disjoined it is true, for he that doth now sit, at another time may run. 2. In Hypothetical propositions, whose parts are joined by some conjunction copulative or disjunctive

conjunctive; as, *two* and *three* are even and odd, but *five* are *two* and *three*, therefore *five* are even and odd. 3. When some word in a sentence may be joined to *diverse things*; as for example;

He that may now be truly said to be born, is born in this hour;

But a man that is threescore years old may now be truly said to be born;

Therefore a man that is threescore years old is born in this hour.

4. When *two things* are taken *severally* in the premisses, and *conjunctly* in the conclusion, and the contrary; as thus;

This dog is a father,

And this dog is yours,

Therefore this dog is your Father.

In these there are *four terms*, and are resolved by separating the *divided sense* from that which is *compounded*; and shewing which of them is *true* and *genuine*, and which not.

A *Fallacy in Accent*, is when one and the same word or sentence doth signifie *diverse things*, by reason of the different accent or manner.

ner of pronunciation; and this may be four waies. 1. By making a *wrong* pronunciation, a long syllable for a short; or the contrary. 2. By the *diverse* writing, without a *diphthong* or *aspiration*; as thus, They that could pronounce *Shibboleth* were safe from the *Gileadites*, but the *Ephramites* could pronounce *Sibboleth*, therefore they were safe. 3. When one word is made of two, or two of one. 4. By changing the manner of the pronunciation, as, thus; He that saith well done, doth acknowledge the action to be good; But he that derides another, doth say, well done! Therefore he that derides another, doth acknowledge the action to be good. In these also there are four terms; and they are solved, by shewing the reason of the *diverse* accent or writing.

A *Fallacy* of the figure of a word, is when for some similitude and likeness of words, that doth seem to agree to one thing, which is proper to another. But these *Fallacies* have the least shew of probability, and therefore are but rarely used, and are many of them solved by saying that the words are indeed like, by reason of some accidents, as, sound or termination; but not in substance sense or signification.

CHAP.

CHAP. XXI.

Of Fallacies in Things.



Fallacies in things are seven.

1. A Fallacy of accident, when that which agreeth to one of the terms in a Syllogism only by accident, is attributed unto another as if it were essential. This happeneth,

1. When we argue from the accident to the subject, and the contrary; for example, That which causeth drunkenness is to be removed; But wine is the cause of drunkenness; Therefore wine must be taken away.

2. When the Genus of the supposition is changed, the material into the formal, the simple into personal, and the contray; as thus, An animal is a Genus, a man is an animal, therefore a man is a Genus.

3. When we argue from the Superiour to the Inferiour and the contrary; as if we would prove that rationality is convertible with living creature, because it is convertible with man. These are solved by distinguishing that which agrees with any thing of it self, from that which doth so by accident.

2. A Fallacy from a thing spoken in some respect to a thing spoken simply; and this is when from

from the *mean term* disposed with limitation, or after a sort with *both* or *either* of the extremes, a *conclusion* is inferred *simply* and *absolutely true*. And this may be *three waies*. 1. When the *limitation* added destroys the *term* to which it is added; as, *Socrates is a dead man, therefore he's a man*. 2. When the *limitation* added, doth signify a *part*; as *a Blackamore hath white teeth, therefore a Blackamore is white*. 3. When the *limitation* added, doth signify some *notable circumstance* of *time, place, person, and the like*; as, *It is fit to cast the merchants goods into the Sea, for the preservation of the men in the ship; therefore it is fit to cast the merchants goods into the Sea*. These are solved by distinguishing that which is *simply* and *absolutely* so, from that which is so in *some respects only*.

3. *A Fallacy from ignorance of the argument*; and this is, when either the *state of the question* is quite turned or wrested; or the *adversaries conclusion* is not directly opposite to our *Thesis*, according to the *Canons of lawful opposition*. This happeneth if the *disputation*, 1. Be not to the *same things*; as, *Socrates is rich, if he be compared with Codrus, poor, if compared with Cræsus, therefore Socrates is both poor and rich*. 2. If it be

be not so in reference to the same; as, no Blackamore is white, every Blackamore is white in reference to his teeth, therefore a Blackamore is and is not white. 3. If it be not taken in the same manner; as Socrates doth run freely, Socrates doth not run freely, therefore Socrates doth and doth not run. 4. If it be not in reference to the same time; as, The faithful under the law did believe that Christ was to come, The faithful under the Gospel do not believe that Christ is to come, but that he is exhibited, therefore the faithful do and do not believe that Christ is to come. All Fallacies may in some sort be reduced unto this of ignorance of the argument, even as all opposition may be reduced to contradiction. These are solved by shewing the defect of the contradiction, in some of the four mentioned conditions.

4. A Fallacy from that which is not the cause for the cause. And this is when that is brought for the true cause, which either is no cause, or else a cause only by accident, or not like unto the effect. This happens 1. When that which is not the true cause is brought for the true; as if one would prove such a war to be a cruel war, because of the appearance of a Comet. 2. When that which is the cause by accident is brought for the true; as if one would prove that the use of wine is to be forbidden

den, because it maketh men drunk. These Fallacies are very useful in such Syllogisms which drive the respondent to something that is impossible; and they are solved, by denying the false cause, and shewing the true.

5. A Fallacy of the consequent; and this is, when that is inferred from the antecedent as the consequent which yet is not the consequent. This happens as often as the rules of conversion, or conditions of Syllogisms are not observed. And these are solved by shewing the weakness of the inferences, either from the rules, or from some other inferences of the same form, which are infirm.

6. A Fallacy from begging the question; and this is when that is used for the mean which is not granted, or is different from that which is sought, but as much unknown. This happeneth many waies. 1. When the thing sought is taken in the same terms; as thus, every man is rational, every man is a man; therefore every man is rational. 2. When the thing sought is expressed in words, Synonymous or equivalent; as if one would prove that a shilling is the twentieth part of pound, because twelve pence is so. 3. When the question is proved by that which is as much or more unknown; as, Heaven is immovable

moveable, because the earth is moveable. 4. When the propositions do mutually prove one another; as, if one would prove that fire is the hottest, because the thinnest; and then again that it is the thinnest because the hottest. It is solved by shewing the vanity and folly of such arguing.

7. A Fallacy of asking many questions; and this is, when many questions or conclusions are confounded in one. This may be two waies. 1. When the same predicate is sought from diverse subjects; as, is the Earth, Sea, or Heaven. 2. When diverse predicates are sought from one and the same subject; as, is man, a living creature, and a stone. These are solved not by answering in one answer to all the parts of the question together, but distinctly to every one.

And thus much concerning a Sophistical Syllogism.

CHAP. XXII.

Of Method.

I Am now to speak of *Order or Method* which is the fourth and last Logical instrument. And, *Method* is the disposing of things belonging to the same matter or subject, so, as that they may be best understood, and easiest remembered.

2. That the limitations of this Definition may be observed; such things must be premised which do conduce to the knowledge of those that follow; or those things at least must be spoken of first, which are more easie to be understood than the rest.

3. Method is twofold, *Natural or Arbitrary*.

4. A natural Method is that in which the order of nature and our distinct knowledge is observed. Some controversie there is here amongst writers, whether in the writing of any subject, it be fit to speak of those things first, which are first in nature; or those things with which we are best acquainted. And I think that for the most part, we are best acquainted with that which is first in nature; but if at any time it happen

I. pens otherwise, then I concur with Zabarel, that those things are to be spoken of first, which come first under our cognizance, and not those that are first in their own nature.

5. *In a natural method all the parts ought to be Homogeneous.* We ought not in a natural method to mingle one science with another, as Ethicks in a treatise of Geometry, or Geometry in a treatise of Ethicks. This must be strictly observed in all the precepts which belong to the essence of any science; but in the commentaries or expositions of any precepts, we may make use of any other science as well as of that, of which we write or speak; as in writing of Physick, we may repeat something of Logick, or in writing of Ethicks we may make use of something in Physick.

6. *In a natural Method, we must speak first of Generals, and then of Particulars; and as we proceed from one thing to another, every part must have a dependence on that which was last spoken of; by some apt translation.* This dependence or connexion must be in this or the like form. And this shall suffice to be spoken of this thing; the next in order to be spoken of is &c. How much such forms do help the memory, is very hard to be believed.

7. *A Natural Method is either Total or Partial.*

8. *A Total Method is that in which a whole Science is methodically ordered or disposed. And this is either Synthetical or Analytical.*

9. *A Synthetical or Compositive Method is that, which begins with the first and most simple principles, and so proceeds to those which do arise from, or are composed of these first principles. And according to this Method we are to write or speak of all speculative arts.*

10. *An Analytical or Resolutive Method is that, which begins with the end, and so proceeds still lower and lower till we come to the first and most simple beginnings. And according to this Method, we are to write or speak of all Practical arts.*

11. *A Partial Method is that, by which any part of any art or science is methodically ordered or disposed: Or by which any particular Theam or Subject, is handled by it self. In this Method we are to consider, that as it is a part of a Total Method, it oftentimes falls out, that in handling a part of some Science, we ought to observe the Analytical Method; if the whole science be to be handled in a Synthetical, and the contrary; that is, in such a science in which the whole is to be handled in an Analytical Method, a part thereof*

thereof must be handled in a Synthetical. As for example, if we were to write of all Physics, we must write in a Synthetical Method, but if we were to write of that part which concerns a living body, it were fit to observe the Analytical Method, beginning first with the actions, which are the ends of life; then proceeding to the causes and principles which are the faculties of the soul, the temperaments and the Organical parts of the living body; And as some particular Theam or Subject is to be handled by it self, we are to consider; That in simple Theams we are first to explain the name, by shewing the Etymology, and explaining the words that are Synonymous thereunto either in the same or in other languages, if it may any thing conduce to the explanation of the Theam propounded: next to the name we are to consider the nearest Genus and Causes; and if the Theam be an accident, the Subject and Object also; and hence the Definition thereof must be composed. To the Definition we must add the adjuncts and effects &c. But in compounded Theams first the question must be rightly stated, and then the proper and genuine sense must be ascertained by good reason and proof, of these things I have already spoken more at

large in my Art of Rhetorick.

12. *An Arbitrary Method is that which not regarding the natural order is fitted for such a confused knowledge as may be most taking with the people or sute best with their capacities.* If we are to speak to sober, judicious & knowing men, there is no question, but that we ought to speak of things in their natural order; but if we have to do with the common sort of people, and such as are guided more by sense than reason, we are to consider of their capacities, and to speak of things not as they are in their natural order, but as they are or may be best apprehended by them.

And thus much concerning *Method*, which is the fourth and last *Logical Instrument*; and with this I shall conclude these my *Logical Precepts*.

Soli Deo Gloria.

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